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ORIGINAL ARTICLES.

KUMYSS—ITS VALUE AS A FOOD AND RECONSTRUCTIVE.

Read in the Section of Physiology and Dietetics, at the Forty-third annual meeting of the American Medical Association, held at Detroit, Mich., June, 1892.

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My object in bringing this paper before you, is to call your attention to the valuable dietetic properties of kumyss and to give you the results of my experience with a new kumyss preparation, called "Kumyssgen" (a kumyss in a dry form).

HISTORICAL SKETCH.

From time immemorial the Nomad tribes of Southern and Eastern Russia and Central Asia, have prepared and used kumyss. Herodotus gives an account of it as used by the Scythians, Virgil sings of a tribe who drank it. Perhaps, the first mention of it by name, may be found in "Ipatof Annals" published at St. Petersburg in 1871. In 1182, Prince Igor Seversky was taken prisoner by the Polobtsy and the captors got so drunk on kumyss that they allowed their prisoner to escape. The old monk and traveller Wm. de Rubruquis, in the thirteenth century, was the first one who wrote a distinct and admirable account about kumyss and its action, its taste and preparation. He says: "The same evening the guide who conducted us, gave us some *cosmos* (which he call the drink). After I had drank it, I sweat most extremely from the dread and novelty, because I never drank it before. Notwithstanding I thought it very savory and indeed it was." And in another part of his travels, he thus refers to it: "Then they, the Tartars, tasted it and being pretty sharp, they drank it, for it biteth a man's tongue like wine of raspberries, when it is drunk. After a man has taken a draught thereof, it leaveth behind it a taste like that of almond milk, and it maketh one's inside feel very comfortable, it also intoxicates weak heads." The next writer to refer to kumyss, is Marco Polo, the Venetian, in his "De Regionibus Orientals." "Their drink is mare's milk prepared in such a way, that you would take it for a white wine, and a right good drink it is,called by them 'Kemiz'."

For nearly 500 years after these old travelers wrote, no mention of kumyss, so far as I am aware, is to be met with in European literature, and it is only towards the end of the eigthteenth century, that it is again brought into notice. Thus Strahlenberg was the first, after de Rubruguis, to give a description of the preparations of kumyss, but his method, although borrowed from and said to have practiced by the Kalmucks, seems to have been unsuccessful. Neumann, a German, and Voltenlau, a Dutch chemist, proved equally unsuccessful in their attempts to explain the nature and causes of fermentation in mare's milk. *Pollas* while mentioning kumyss, in his travels, also states that the Tartars, during winter,when mare's milk fails them,prepare a wine from cow's milk. Gmelin gives an account of the distillation by the Nomads of a spirit from milk, while Oxeretkowsky in 1778, sent a graduation thesis to the Academy at St. Petersburg. (These last two writers wrote only about the spirit obtained from kumyss, and not about kumyss itself.) All these travelers and authors spoken of, considered kumyss to be simply the intoxicating beverage of said Nomad tribes. No one appears to have been impressed by its remarkable nutritive qualities, since no one seems to have regarded it in the light of a food. The credit of being the first to estimate the importance of kumyss as an article of diet, and of discovering its uses, as a therapeutic remedy, belongs to Dr. John Grieve, a surgeon, one of the many Scotchman who have, from time to time entered the Russian service, and who in 1784, wrote a communication to the Royal Society of Edenburgh, entitled, "An account of the method of making a wine, called by the Tartars, kumyss, with observations on its usage in medicine." And he thought that "With the superaddition of a fermented spirit, it might be of essential service, in all those disorders where the body is defective either in nourishment or strength." And he further proved the benefit of the milk wine on three patients, two of whom were consumptives, sending them to the steppes among the Tartars, from where they returned stout and in perfect health. After the return of these first patients, sent to Tartary, Grieve commenced making kumyss himself.

At the beginning of the present century Dr. Haeberlin gave an excellent description of kumyss; he being a consumptive, tried its therapeutical effects on himself for 13 long years. From the year 1811, when Haeberlin's communication was posthumously published, until the year 1857, several treatises on kumyss are to be found scattered through various Russian and German periodicals, lay and medical.

But in 1858, Dr. Postikof started an establishment for the cure of diseases, by fermented mare's milk, at Samara, in Eastern Russia, and a similar establishment about 45 miles distant, was started by the late Dr. Tchembulatof, both of which have been extremely well patronized by patients from all over the world. So successful were they, that the Russian government, in 1870, started a place of their own for the cure of sick soldiers, belonging to the Kazan district. Here were provided 120 beds, and at this little hospital, the surgeons began their experiments with the kumyss cure, which proved thoroughly successful. Various diseases were treated and the hospital was still in existence after ten years' trial.

The first persons to test the value of kumyss in

hospital practice, were Dr. Neftel, who in 1859 treated 15 soldiers with it, in the Orenborg Military Hospital, and Dr. Zeland, who in 1861 accompanied a party of phthisical soldiers sent by the Russian War Office, to drink fermented mare's milk in the Bashir Steppes. Both of these surgeons spoke highly of kumyss, in the admirable essays published by them on the subject.

In ending this imperfect sketch of the history of kumyss, a few words in regard to its literature, during the last few years, may not be out of place. From 1858 to the present day, several excellent pamphlets and articles were published on kumyss, embodying the experience of those who had been in the steppes, and who had carefully and dispassionately investigated its action in disease, and it is a fact that since John Grieve's time, not a single medical author, practically acquainted with kumyss, has failed to give it full praise, as the best known remedy and reconstructive agent, in all wasting diseases. The writings of Drs. Grieve, Haeberlin, Homenko, Dahl, Maydell, Ucke, Stahlberg, etc., etc., bear witness to what has been stated, and display in their praises of kumyss, a unanimity of opinion quite exceptional in the history of therapeutic remedies. In a few rare instances, where we find kumyss disparagingly spoken of, it is by authors who had no practical knowledge of its uses.

KUMYSS PREPARATIONS.

The curative properties of mare's milk induced physicians and chemists to try cow's milk, which is so much easier to procure, for making kumyss. It was successfully tried and a new food and drink was given to the civilized world. Dr. Jageliski says, "I consider cow's milk an equally good raw material, if not better than mare's milk for the preparation of kumyss;" while Dr. Landowski regards the richness of cow's milk as advantageous when compared with mare's, to the invalid, who absorbs a larger quantity of nutritive material; then came a preparation, made by fermenting a mixture of cow's and asses milk, which made an excellent substitute for kumyss, and a new name was coined for it, which may be applied to all fermenting milk, "Galazyma," taken from the Greek. For particulars, I would refer you to a little work, by Dr. B. Schnepp, of Eaux Bonnes, entitled "Traitment efficace par le Galazmye des effections catarrhales, de la phthsic et des consumptions en general, Paris, 1865."

I will not dwell on the methods of the manufacture of kumyss, as it can now readily be obtained prepared for use; in fact, I would advise against its preparation in the household, or by the physician. The operation is a delicate one, it requires special knowledge and appliances for regulating temperature, etc. The new preparation, "kumyssgen," being in the form of a dry powder, can be sent everywhere, and the preparation of an excellent kumyss from it is a very simple matter.

The milk of various animals is made use of, besides that of the cow, namely: the goat, the ass, sheep, camel and mare. Milk is used as it is drawn, or in the form of whey or curdled. Ghee is a favorite beverage throughout all India. It is a stale butter, clarified by boiling and straining. When it is set aside to cool, it remains in a semi-liquid or oily state, and is used as a drink and in cooking by the natives. In milk-beer, milk is substituted for water. Kef is a kind of effervescing fermented milk, resembling kumyss, which is made at Samara. Yamanet is a favorite drink in Constantinople, made by curdling milk in a peculiar manner. Syra is a sour whey used as a drink like small beer in Norway and Iceland. Aizen and liban, both forms of kumyss, are made one by the Tartars, the other by the Arabs. Kefir is another fermented beverage, prepared in the mountains of the Caucasus from cow's milk. This fermentation process is brought about by a micro-organism, the Dispora Caucausica, which is added to the milk; it possesses the property of converting the milk sugar into alcohol, carbonic acid and lactic acid.

WHAT KUMYSS IS.

We know that kumyss is a highly effervescent, slightly acidulous beverage, made from milk by a peculiar process of fermentation. It contains the casein, the most nutritious element of milk, in a form in which it can be much more readily digested and assimilated.

The principal changes which milk undergoes, when converted into kumyss, are: the milk sugar is partly converted into lactic acid, carbonic acid and alcohol, the albuminoids are partially peptonized, and the remainder separated into such a finely divided state that the digestive fluids can readily act on them. As the above changes are constantly going on in kumyss, we can readily see that it is not at all stable, that its composition is constantly changing.

While in the first stage, when still somewhat sweet and only gently effervescent, it is called *mild kumyss*, similar to kumyss made from kumyssgen, when freshly prepared. This, in the course of a few days, passes into the *strong kumyss*, decidedly acid and highly effervescent. While in the intermediate state it is called *medium kumyss*. All these conditions are under perfect control by the use of kumyssgen.

Kumyss when taken in large doses, should not be administered too cold. Except in cases of severe and uncontrollable vomiting, it should be given with the chill off, and will then be found very easy to digest. This point I want to impress on you, particularly when used in pulmonary phthisis, where the consumption of large quantities of kumyss is required, and where the nearer the temperature of the ingested fluid approaches that of the blood, the sooner and easier will it be absorbed and digested. A temperature of about 60° Fahrenheit is found to be the best.

The next question is, in what quantities shall kumyss be taken? The first precaution to be observed is that the quantity should never exceed what the invalid's stomach can easily digest, and will also depend upon the disease for which kumyss has been prescribed. As a food, any quantity can be taken by a healthy individual.

Regarding the physiological action of kumyss and its many therapeutical applications, I must refer you to the literature on the subject, as the allotted time for the reading of this paper is limited.

Some of the therapeutical applications, both as a special addition to foods and as a reconstructive, which I have made with kumyssgen. We know that there are diets suited to every age, to every climate, to every species of work, physical and mental; there are diets by which diseases may be prevented and cured; diets beneficial to some constitutions and injurious to others; diets which

make the skin glossy, the frame vigorous and the spirit joyous; others which mar the face with wrinkles, speckle the body with eruptions, and make the form sallow, lean and prematurely old.

When by successive researches, the science of diet, feeding and administration of proper reconstructives to patients, is better understood, without doubt a school of physicians will arise, discarding all drugs and treating disease by forbidding certain foods and by surfeiting with others; if indeed at the present time there is not, in the highest representatives of medicine, the nucleus of the future school of dietetics already formed.

Invalids! What thoughts does that word call into being; what pictures does the imagination construct. The whole world seems full of invalids; beings whose life is a burden to them, who would give their wealth to be relieved of their wretchedness, who would barter their knowledge and fame for the careless life of the healthy man.

We meet them in a dreary procession, here and across the continent of Europe, scattered up and down the sunny shores of the Mediterranean, steaming across the sea in pursuit of rest, camping on lonely spots to cheat their pain, all up and down the world, among the haunts of men, life taking its sad tinge from their heritage of weakness.

There are invalids who are such because they do not have enough food; there are those who are such because they have too much food; there are invalids who have made themselves such by improper diet; and there are invalids who are invalids because they will not eat proper food.

There is no doubt that improper food is often the cause of our ills and certain maladies—that much abused member of our body, the stomach, is often answerable for ill-temper, discontent, fretfulness, caprice and ennui, and yet if we listen to its admonitions, and heed its teachings, we should enjoy more peace and find more happiness in our lives.

The success of halt the water cures and health resorts is based on this fact, for they associate with their strictly medical treatment a strict dietetic regimen, plain, wholesome and temperate, and which is insisted on as part of the cure, knowing that the over-eating and drinking, during the city season, must be combated with the moderation of the holiday season. It is a very rational mode of treatment, and is the only one that will restore the balance. Far better would it be, if the need for cure did not exist, but such self-denial is too much to look for, in these enervating days.

In an article published by me, in the *Journal of Baneology and Dietary*, of March, 1892, entitled "Diet, Digestion and the Voice, etc.," I had occasion to thoroughly discuss this subject, giving my several years' experience in the treatment of the diseases of vocal organs in singers, actors, clergymen, lawyers and others, observing that diet played a chief part in their successful treatment. I have also spoken in detail in this article of a diet (a modification of the true vegetarian system), called by me "modified vegetarian," one which I adopt for various reasons explained therein. I prescribe this mode of living in all diseases of the nose, throat and the ear, and in all catarrhal forms of chest diseases, either simple or complicated, with Bright's or other forms of kidney diseases, in rheumatism, gout, dyspepsia, and stomach disorders of all kinds, in nervous diseases and in all degrees of alcoholism.

My modification of the mixed vegetarian system, consists in the utility of fats as an economiser of albuminoids, and I must say that a vegetarian diet, in which animal and vegetable fats enter freely, is a very much more complete food and likely to be very much more satisfactory, than one from which all animal fats, like butter, cream, milk and kumyss are excluded. Indeed vegetarianism with liberal allowance of fats of all kinds, has in my experience given by far the most satisfactory results, in such cases as gout, rheumatism and indeed in all dyspeptic disorders.

From my experience of several years' employment of this system in my practice, I do not consider that by this means we reduce the albuminoids too much. I can commend this modified form of vegetarian system, though its adoption must not be undertaken too suddenly, and must be done under the supervision of a physician.

When prescribing such a diet, I supply the albuminoids by using kumyssgen or kumyss and lean meats of all kinds, etc. The kumyss, I allow my patients to partake of as much as they desire to drink.

We know that most professional people, whom we are called upon to treat for affections of the nose, throat, etc., are accustomed to high living. We therefore often find in this class of people, old cases of dyspepsia, as well as an atonic state of the small and large intestines resulting therefrom, and I find that such cases are readily relieved by kumyss, with a modified diet. I have had patients whose digestion had for years been accompanied by extreme uneasiness or pain, and who are obliged to confine themselves to the simplest articles of food, which only half nourish their bodies. Soon after being placed on kumyss and a proper diet, the distressing symptoms disappear, their stomach after a time, regaining the power of digesting almost all foods.

In cases of scrofula, syphilis and anæmia where the blood is impoverished or poisoned or the tissues are undergoing rapid waste, there is nothing known that gives so much satisfaction, as kumyss combined with the remedies in use for the treatment of these affections. The combination of iron and kumyss gave me excellent results.

It was found that in all such cases, kumyss produced no specific action, but was simply the most digestable food that could be employed, with the view of improving the quality of the blood, and the nutrition of the body.

In the many operations which we are called upon to perform about the mouth, throat, etc., I know of no better food, that serves to keep the body above par during the healing process, than kumyss given "ad libatum." I find kumyss of special service after the operation of intubation of the larynx. In these cases, I am in the habit, where swallowing is interfered with, of feeding by a stomach tube, and the only food that I found thus far suitable, was kumyss. I would feed the patients on it from three to four times daily, giving the quantity indicated by the age.

In two cases of cancer of the œsophagus, the nutrition of the body was extremely low when the cases came into my hands for treatment, on account of a lack of nutritious food. These cases having the cancerous growth so situated, I intubed the œsophagus and through the opening thus made, kept up the nourishment of these patients by kumyss and a gen-

erous diet. Large quantities of kumyss were administered in this way. Their life beyond doubt, was prolonged for eight months, besides relieving them from the agonies of starvation, which is the usual end in such cases. I will cite one more important case from my record book, showing the importance of kumyss as a reconstructive.

A child two years old was suffering from a syphilitic tumor at the base of the interior of the epiglottis; the tumor involved the vault of the larynx, which necessitated a dangerous operation at that age. I intubed the child and by means of the stomach pump, fed it on kumyss for three months, until the action of the remedies employed for the treatment of this tumor, resulted in diminishing its size. The child recovered without much loss of weight.

Many other similar cases thus treated with kumyss, I could cite, and I would advise you all to give this valuable food a thorough trial. I can highly recommend its use, in all branches of medicine, as well as in my special cases. For additional points connected with special application of "diet" dietetics for all voice users, I must refer to my article cited above.

In conclusion I would say, that I have substituted kumyss, made from kumyssgen (the new dry form of kumyss) in all cases where I formerly employed liquid kumyss,and find it much superior in many respects, both in regard to convenience of handling and in the results obtained. It is uniform in composition and I find most patients will take it readily, which is not the case with the liquid kumyss.

LARYNGEAL TUBERCLE AND TUBERCULIN.

Read in the Section of Laryngology and Otology, at the Forty-third annual meeting of the American Medical Association, held at Detroit, Mich., June, 1892.

BY A. J. ERWIN, M.D.,
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It is not the object of this paper to enter upon a general study of the treatment of laryngeal tubercle with tuberculin, or to summarize the published experience of others, but merely to give you a brief account of a few cases from my own clinic, and to make a few inferences from the same. During the past year I examined sixty-three cases of tuberculosis of the respiratory organs, and treated twenty-six of them with tuberculin. Of these twenty-six seven had disease of the larynx in addition to the lung disease, which was well-marked in each case, and in no case was there any indication of either inherited or acquired syphilis, viz.:

Case 1.—Wm. Brintenbucher, æt. 20; Londonville, Ohio. Cough began about January 1, 1891; had hæmorrhages April 15 and 16; fever and night-sweats daily; decreased in weight 20 pounds; consumption hereditary on both sides of family.

April 23, 1891, 4 P.M.—Pulse, 132; respiration, 30; temperature, 102. Cough frequent, some expectoration containing bacilli, râles and obstruction in the apex of the left lung, an ulcer on inner surface of left arytenoid cartilage, deep, and a quarter of an inch in diameter. Also a solid tubercle an eighth of an inch in diameter on the first trachial ring.

I treated him exclusively with tuberculin from April 23 to August 15, in all 54 injections from 1-20 to 1. minim each. The solid tubercle and the râles had entirely disappeared by May 20, but the ulcer on the arytenoid did not close until about the first of August. Some thickening remained for two months later, by which time his cough and expectoration had ceased, and he had increased twenty-nine pounds in weight. Up to this date there has not not been any return of the disease in his throat, but since April first his lungs show evidence of increasing tubercularization. He has not returned for treatment.

Case 2.—Mrs. Jacob Miller, æt. 23; Mansfield, Ohio. Began to cough and have fever and night sweats in December, 1889; has had an occasional small hæmorrhage; appetite and digestion good; no loss of weight, consumption hereditary on one side.

March 28, 1891, 3 P.M.—Pulse, 100; respiration, 24; temperature, 101. Râles in apices of lungs, cough frequent. Free expectoration containing bacilli, anæmic, fever and sweats daily; tuberculous ulcer covering the inner surface of left arytenoid cartilage. She received 45 injections of tuberculin between March 28, and the following July 1, without producing any change in either lungs or throat for better or worse. She died of lung disease eight months later.

Case 3.—Mrs. George McMullen, æt. 25; Mansfield, Ohio. Cough and fever began December, 1890; has had two slight hæmorrhages; has decreased 20 pounds in weight; lung disease hereditary on both sides of family.

May 13, 1891, 4 P.M.—Pulse, 92; respiration, 22; temperature, 100. Râles throughout left lung; free expectoration. Sputum contains bacilli, cough frequent; left arytenoid a little thickened, not ulcerated; appetite and digestion poor. Began injections of tuberculin May 14, 1891. By June 1, entire anterior surface of left arytenoid had ulcerated with increased thickening of the cartilage. Treatment continued to July 21, in all 32 injections. When discontinued, the arytenoid thickening had considerably diminished, the ulcer was about half the former size. Left lung unchanged. Appetite and digestion improved. The fever and sweats had ceased by the middle of June; her weight had increased 5 pounds. There was no return of fever or sweating, nor increase of the lung, or laryngeal disease until March, last, since which date there has been a gradual increase of the lung and laryngeal lesions. The treatment has not been renewed.

Case 4.—Wm. Masky, æt. 30; Mansfield, Ohio. Cough, fever and sweats began with the grip November, 1889; has lost 27 pounds in weight; lung disease hereditary on one side of family.

May 18, 1891, 5 P.M.—Pulse, 120; respiration, 24; temperature, 101. Upper lobe of each lung obstructed; murmur very deficient; no râles; frequent cough; no expectoration; mucous from throat contains bacilli; anæmic and weakened. Larynx and trachia covered with miliary tubercles. I treated him with tuberculin from May 18 to July 1, without making any improvement on either throat or lungs. He died of pulmonary hæmorrhage three months later.

Case 5.—J. D. Tipton, æt. 26; Ashland, Ohio. Cough and fever began September. 1890; had frequent profuse hæmorrhages in April and May. Consumption hereditary on both sides of family.

May 25, 1891, 3 P.M.—Pulse, 128; respiration, 32; temperature 102. Obstruction and râles throughout the right lung, and in apex of left. Cough frequent, expectoration large; sputum contained bacilli. No disease of larynx. Began tuberculin injections May 26, 1891, which were continued daily at first, and semi-weekly afterwards to Aug. 6, from one-tenth to one minim each. About July 4 an ulcer opened on the right ary-epiglottic fold, and one on the inner surface of the left arytenoid, with considerable thickening. Last examination, Sept. 7, showed no improvement in either throat or lungs. Died Jan. 1, 1892.

Case 6.—Frank Stevens, æt. 27; Carey, O. Cough and fever began spring of 1890; had several large hæmorrhages in June, 1891; lung disease not hereditary, although two brothers and sisters died of it.

Sept. 21, 1891, 3 P.M.—Pulse, 120; respiration, 24; temperature, 100. Râles and obstruction throughout right lung; superior lobe of left obstructed; miliary tuberculosis covering pharynx and larynx; free expectoration containing bacilli. Received tuberculin treatment for one month, in all 20 injections, without any improvement of throat or lungs. Died a few weeks later.

Case 7.—Mrs. A. Voeglir, æt. 28; Mansfield, Ohio. Cough, fever and night sweats began July, 1890; has lost 26 pounds in weight. No hæmorrhages; very weak and anæmic. Father and sisters died of consumption.

May 7, 1891, 4 P.M.—Pulse, 130; respiration, 30; temperature, 103. Obstruction and râles in apex of each lung, left arytenoid double as thick as the right, with deep ulcer covering anterior surface, from which pain extends to left ear; cough frequent, expectoration moderate; bacilli in sputum. Began treatment with tuberculin May 8, 1891. For the first month daily injections, beginning with one-tenth and reaching two minims each. By July 1 the obstruction and râles had disappeared from the lungs. September 5, the thickening had left the arytenoid, but the ulcer did not entirely heal until about Nov. 1, leaving some deformity of

the cartilage. She passed the winter without return of fever, sweats or expectoration, and scarcely any cough, with a good appetite and good digestion, and fifteen pounds of increase of weight. In March last, she had an attack of the grip, which developed some râles in apex of right lung, and some infiltration of the previously diseased left arytenoid and fold extending to the epiglottis and slight fever. She returned to the tuberculin treatment, having an injection of from one to two minims twice per week. After about half a dozen injections the laryngeal infiltration disappeared without ulcerating, and the râles ceased in the lung a week or two later. She has now scarcely any cough or expectoration, and no bacilli with sputum. No fever, and fair health. Since September first, 1892, some disease in apices of lungs, with cough and expectoration, which is again improving under tuberculin injections, but no return of disease of larynx.

I believe that had Mr. Brintenbucher and Mrs. McMullen returned to the tuberculin treatment when the disease reappeared they would again have been relieved as readily as was Mrs. Voeglir.

In addition to these seven cases treated, I examined five others last summer who did not take the tuberculin but continued other treatment. Every one of them have since died. The inferences that might be drawn from this limited experience are, viz.:

1. Tuberculin will cure some cases of tubercular laryngitis, and will generally stop its progress.

2. The treatment must be continued much longer than is generally practiced to affect a cure.

3. Should there be subsequent renewal of the disease, the treatment should be repeated without delay.

4. It is only in the earlier stage of tuberculosis that the tuberculin treatment is likely to be successful.

5. Considered in connection with my experience in the treatment of lung disease with tuberculin, laryngeal tubercle is less amenable to the tuberculin treatment than is phthisis pulmonalis.

In answer to the inquiry as to the results of the tuberculin treatment in pulmonary tubercle, I would say, that of the twenty-six cases treated, more than one-half were too far advanced to expect any benefit, and yet of the whole number treated one year ago, five are now in good health (June 1, 1892), without any sign or symptom of tuberculosis, four were greatly improved, but relapsed during the past spring; two of them have since died without renewing the treatment, the other two returned to the tuberculin and have again improved and are in fair health. Seventeen were not improved by the treatment. In no case was there any bad effect from the injections. I made in all five hundred and twenty-two injections of tuberculin without causing one abscess, or one case of laryngitis.

THE PHYSIOLOGY AND PATHOLOGY OF THE TONSILS.

Read in the Section of Laryngology and Otology, at the Forty-third Annual Meeting of the American Medical Association, held at Detroit, Mich., June, 1892.

BY JOHN NORTH, A.M., M.D., PH.C., F.S.SC., LOND.

PROFESSOR OF DISEASES OF THE NOSE, THROAT AND LUNGS, IN THE TOLEDO MEDICAL COLLEGE, TOLEDO, O.

Lennox Brown says: "Of the primary value of these glands there is considerable doubt, but it is certain that at a very early age, and in the great majority of instances, they exist only to become diseased, so much so that a very eminent physician has stated that were he to play the part of a Frankenstein and endeavor to create a man, he would omit the tonsils."

The term tonsil is applied to the collection of so-called lymphoid tissue known as the faucial tonsil.

The tonsils are situated on each side of the fauces, between the anterior and posterior pillars of the soft palate. Gray says: "They are of a rounded form, and vary considerably in size in different individuals," he does not give their size. Holden says: "The tonsil consists of an aggregation of muciparous glands." No mention is made of their size. Ellis and Ford say: "This body (the tonsil) is an aggregation of ten or twenty follicular glands, like those over the root of the tongue, and it occupies the interval between the arches of the palate. Its size varies much. Its situation is marked by the presence of small holes in the mucous membrane, without any surface prominence; but when enlarged from disease it projects, diminishing thus the size of the isthmus of the fauces." Ranney says: "The tonsils are small bodies situated between the anterior and posterior pillars of the fauces upon either side." Delavan in Satterthwaite says: "The tonsil consists essentially of a reduplication, more or less extensive, of the oral mucous membrane, containing in its folds an abundance of the so-called adenoid tissue." Mackenzie says that the tonsils are generally about as large as a hazel nut, and "can be just seen when the mouth is wide open, projecting into the isthmus faucium." Sajous says: "Each tonsil is about 9 lines long and 6 lines wide, and its thickness is usually so limited in the normal condition as to render its examination very difficult." Rumboldt says: "If they are in a healthy condition they do not project within sight; if they are in sight, then they are in a more or less diseased condition."

Drs. Bosworth, Woolen and others claim that normally there are no tonsils—that the enlargements we call tonsils are in reality abnormal conditions.

Dr. Roe says this in the main is true. Normally the collection of glands at these points are not noticeable on inspection of the throat, and therefore no tonsil appears to exist.

Every rhino-laryngologist knows that less than 50 per cent. of all the throats that he looks into have no tonsils, as we understand the word tonsil, referring to a protruding gland occupying the space between the anterior and posterior pillars. If we were to look into the throats of a large number of people, men, women and children, we would be surprised at the small number of tonsils that we can see, and when we do find them we find them associated with chronic naso-pharyngeal troubles, and not with a healthy naso-pharynx.

Now let us inquire and examine into what we do find between the anterior and posterior pillars of the soft palate. Gray, without saying anything about their size or thickness, says: "Its inner surface presents from twelve to fifteen orifices, leading into small recesses, from which numerous follicles branch out into the substance of the gland. These follicles are lined by a continuation of the mucous membrane of the pharynx, covered with epithelium, their walls being formed by a layer of closed capsules imbedded in the submucous tissue. These capsules are analogous to those of Peyer's glands; they contain a thick grayish secretion." In another place Gray says: "Peyer's glands may be regarded as aggregations of solitary glands." He also describes solitary glands as "small round, whitish bodies, from half a line to a line in diameter, consisting of a closed saccular

cavity, having no excretory duct, and contains an opaque white secretion. Their free surface is covered with villi, and each gland is surrounded by openings like those of the follicles of Lieberkiihn. Their use is not known." Again: "The simple follicles or crypts of Lieberkiihn consist of minute tubular depressions of the mucous membranes, arranged perpendicularly to the surface, upon which they open by small circular apertures." If the capsules of the tonsils are analogous to those of Peyer's glands we would expect to find them of the same size in all cases in health, as we find no variations in size in Peyer's glands, except in disease.

Ellis and Ford say: "In its structure it resembles the follicular glands. In the bottom of the holes or depressions on the surface of the mucous membrane, are small apertures leading into recesses or follicles; these recesses are lined by mucous membrane, and are set around with closed capsules filled with a grayish fluid and contain cells, and bodies like free nuclei. The capsules do not appear to have any apertures." Delavan in Satterthwaite's Histology says: "The minute structure of the adenoid tissue of the tonsil does not differ from that of other follicular glands (those of the intestines, etc.)."

In the healthy condition the space between the anterior and posterior pillars is an inverted trouth; if we place our fingers in it without applying pressure we feel a smooth surface, but if we apply a little pressure we find a thickened condition of the mucous membrane. If we produce a contraction of the superior constrictor muscle as in gagging, we find the muscle pressing out this thickened membrane, and we feel and see a projection filling up the space between the pillars. Now the question arises, what does this thickened condition of the mucous membrane consist of? I will not take up your time with the anatomy and histology of mucous membrane, as you are all familiar with it. Mucous membrane is described as composed of three layers:

First. A superficial layer, composed of epithelial cells.

Second. The mucus proper, a layer composed of white fibrous and yellow connective elastic tissue, embracing within their meshes blood-vessels, smooth muscular fibers, different varieties of small glands, and presenting minute processes or villi.

Third. An external layer of loose connective tissue, the submucous cellular tissue.

The chart will show these three layers. You will also notice the presence of simple and compound follicular glands. As to the function of the epithelial cells, I can do no better than to quote Bosworth: "We find the mucous membrane covered with epithelial cells of various character and arranged in various ways, according to the locality and special function which it subserves: the object of the epithelial cells being merely the secretion of mucus. In these tissues, we may regard each individual cell as a typical gland, displayed over the surface of the mucous membrane, whose object is to keep the membrane softened and moistened. In fact, nature endows the membrane in this manner with its own lubricating apparatus. It is found, however, that epithelial cells simply displayed in layers on an unbroken surface are unequal to the demand. In other words, distributed in this manner, they are not equal to supplying a sufficient quantity of mucus for lubricating the passages. To remedy this deficiency, nature resorts to a very simple device for extending the secreting surface. This consists in folding the membrane upon itself, as it were, or in other words, bending it down into the tissues and back again, to form a small flask-like cavity which is called a follicular gland. In other cases, instead of forming a straight fold, the pouch-like cavity of the simple follicle is folded on itself a number of times, forming a group of small flask-like pouches, as it were, which uniting, open upon the surface by a single orifice, thus constituting what is known as a racemose gland. The arrangement of glands and follicles in the mucous membrane, therefore, I take it are for the purpose of enlarging the surface over which the epithelial cells may be distributed, and therefore increasing the secreting power of the membrane, in order that its surface shall be constantly supplied with an abundant quantity of mucus, the normal lubricant of the membrane."

In what is known as the faucial tonsil we have reduplications of the mucous membrane making from twelve to sixteen or even twenty of these follicles, the orifices giving us the crypts of the tonsil. This aggregation of twelve to sixteen follicles is what we call the tonsil. Is it a gland or a collection of glands?

The principal function of this aggregation of follicles in this inverted pouch between the anterior and posterior pillars of the soft palate is to lubricate the bolus of food in its passage to the stomach. In the act of deglutition the contraction of the superior constrictor and palato-glossus muscles presses upon the tonsil, and forces out the accumulated mucus from its numerous follicles.

Other functions are attributed to the tonsil in addition to that as a lubricator of food. Almost every one has a favorite theory in regard to the function of the tonsils. Some of them are hardly entitled to the dignity of a theory, but are merely hypotheses. Some of the theories should receive some attention. One strongly advocated by Dr. Rice is that the tonsil was a blood elaborating organ. This can hardly be borne out by the facts when we more thoroughly examine the case.

In order to determine the relations of enlarged tonsils in children to their general physical development, Dr. Upsenski examined a number of children between the ages of 10 and 14. He found fifty-two cases in which enlargement had taken place. Of these twenty were deficient as to height, weight and circumference of the chest for their respective ages. A few were myopic; thirty-seven lacked acuteness of hearing; most of them were anæmic, with weak and hoarse voice. Breathing through the nose was difficult, and in most of the cases obstructed. With the tonsillar enlargement there was also granular or atrophic pharyngitis in almost every case, and in many there was swelling of the glands of the cervical and submaxillary region. I have never met with a case of enlarged tonsils in which the patient was not better physically after their removal. In cases where the tonsil is normal in size; that is, does not fill up the space between the pillars, and in cases where they have been removed, we do not find deficient elaboration of blood, but the reverse is usually the case.

Others claim that the tonsil is a "leucocyte manufactory," and that on this account the tonsils act as sentinels, or as it has been expressed, act as guard-

houses and send out squads of sanitary police, in the form of phagocytes, that stand guard at the entrance of the follicles to catch and destroy any germ that might attempt to enter the tonsil, or even pass through the isthmus of the fauces. It may be true that the germs of disease may be destroyed when they lodge upon the surface of the normal tonsils, but when we have any enlargement of them, we find the orifice of the follicles wide open, and the germs enter and find an excellent media for development. It is a very nice theory, and one that seems to please the public. They have vivid pictures drawn in their minds of the phagocytes setting upon tonsils, ready to destroy any and all the germs that attempt to enter the system through the mouth. The public are not alone in this, but even some physicians share the same opinion, and think that the tonsils are placed in the fauces for some use, and the larger they are the more capable they are of performing their functions, and that they should never be disturbed until they reach such size as to interfere with respiration, and then recommend that a little of the surface be clipped, but that care be taken not to remove too much, as it would interfere with their proper function—which is true in enlarged tonsils, to a certain extent, for they would lose their function as germ and poison absorbers, which seems to be about the only function that enlarged tonsils possess.

In prehistoric times, and in some of the savage tribes at present, that depend upon dry nuts and roots for food, something was required to lubricate the bolus of food. But with our modern cooks and method of preparing food, a lubricant is not necessary.

Time will not permit me to take up and consider all the theories that have been advanced in regard to the physiological functions of the tonsils. Most of them are only theories and a theory at best is only scientific guessing.

When we come to consider the pathology of the tonsils we find that we are about as ignorant of its pathology as we are of its physiology. Of its pathological anatomy we know considerable, but of its true pathology, that is, the physiology of its diseased condition, we know but little. We can never know the pathology of any organ till we first know its physiology. The surgeon might just as well attempt to understand surgery without a knowledge of anatomy.

Physiology is the language of histology, while pathology is the language of pathological anatomy, or diseased histology. Pathology and pathological anatomy are incorrectly used as synonymous terms by a great many medical writers.

It is very questionable whether the tonsils ever become diseased unless there is an underlying dyscrasia or constitutional taint of system, or by the lodgment of some microörganism in the follicles of the membrane.

The contents of the crypts or follicles of the tonsils when in a healthy condition consists of mucus with exfoliated epithelial cells. It is a question whether anything else is found. Cultures made from their contents do not show the presence of any microörganism. When there is enlargement of the tonsils the follicles become larger, and are filled with a yellowish substance composed of fat-molecules, detached pavement-epithelium, lymph-corpuscles, small molecular granules, and cholesterin-crystals, which probably proceed from retained and decomposed epithelial matter, and perhaps from the bursting of the capsules, which have undergone retrograde metamorphosis and fatty degeneration.

Dr. Wright has made a number of cultures from the contents of the crypts, and where they were at all enlarged he found there constantly the staphylococcus aureus or albus.

I have no doubt that this, or other organisms found in the follicles of enlarged tonsils is the cause of follicular tonsillitis. They generate ptomaines or extractive matter that acts as toxic-material. In a large proportion of cases these organisms do not appear to generate much toxic matter, but when the system is subjected to impure air, such as sewer gas, etc., the germ finds an atmosphere that is favorable to its development. They increase very rapidly under these conditions and in their increase, cause a destruction of the tissues, and a retrograde metamorphosis, with generation of toxic matter. The presence of impure air alone, without microörganisms will not, in my opinion, give rise to follicular tonsillitis, or any other form of tonsillar inflammation. It is very propable that suppurative tonsillitis is only produced by a microörganism, not necessarily a single germ, or one variety of germs in every case. Persons with healthy tonsils of normal size very seldom, if ever, have any form of tonsillitis.

If the diphtheritic bacillus come in contact with healthy normal mucous membrane, without diseased follicles, it cannot find lodgment, and does not develop. But if the follicles are diseased and full of degenerated matter, with their orifice wide open, it generally finds lodgment, and finds a good media for development. It is not necessary that it be in the follicles of the faucial tonsils, but in the follicles of any of the so-called tonsillar structure or lymphoid tissue. Under certain conditions the diphtheritic germ may find lodgment in these diseased follicles, and generate sufficient poison to give rise to constitutional symptoms without the appearance of the membrane for some length of time. Or the germ may find lodgment in the follicles outside of the faucial tonsils and the membrane not be observed till it has spread into the field of vision.

When the diphtheritic germ finds lodgment and develops in the follicles of the tonsil, we simply call it diphtheria, if in the pharyngeal tonsil, nasal diphtheria. If in the adenoid tissue at the upper portion of the trachea it is called membranous croup.

There is a dyscrasia or constitutional taint or condition of the system in some patients, which in some cases appears to be hereditary, in which we have an enlarged and diseased condition of all the circle of lymphoid tissue found in the upper respiratory tract. The term "lymphoidism" has been applied to this condition. In this condition we have enlargement of the tonsils and instead of finding the tonsil a blood elaborating organ, we find that it prevents or retards the elaboration of blood; these patients become anæmic. If the enlarged tonsils and other portions of the enlarged lymphoid tissue are removed, the patient improves at once. In some of these cases the tonsil will diminish under the administration of iron, or the iodides; still better when the combinations of iodine and iron are administered.

The constitutional effect of enlarged tonsils are always relieved by the use of iodine or some of the iodides.

Iodine and the soluble iodides are the best germ

destroyers and the best destroyer, of the products of germs.

What is the so-called rheumatism of the tonsils? Is it not simply the action of some microbe and its products? Every symptom of it can be explained by germ action. We find that it is only such anti-rheumatic agents are also anti-germ agents that give us our relief in so-called tonsillar rheumatism. I do not believe that the chemical and microscopic examination of the blood, urine and other liquids and solids of the body will justify us in claiming that tonsillitis and rheumatism are one and the same disease. We may have a rheumatism of the tonsils, but not every case of tonsillitis is rheumatic in its origin.

Sokolowski of Poland, in an article on the "Pathological Inflammatory Affections of the Tonsils," speaks of diseased crypts of the tonsils with increased secretion. We mostly meet in the crypts with plugs composed of compact horny epithelial cells, with a small addition of lymphoid cells. It is known that, for the most part, they are situated in the crypts of enlarged tonsils. The author on examining tonsils hardened in alcohol, convinced himself that the walls of the crypts are strewed with small grains sometimes as if with small papillæ, which under the microscope presented themselves as greatly hypertrophied folliculi, growing into the lumen of the crypts, thence the stenosis of the orifice of the crypts and accumulation of the secretion, which remaining a longer time decomposes and iritates the neighboring tissue resulting in catarrh, mostly characterized by proliferation and great disquamation of the epithelium.

We have all met with cases of recurrent inflammation and suppuration of tonsils, where they have been cauterized or shrunken by electricity or the application of caustics, also in cases in which enlarged tonsils have been clipped or partially removed by the knife.

In this class of cases the remaining portion of the tonsil, even if it has contracted so that it cannot be seen by ordinary inspection, gives the patient and physician more trouble than before the removal. If the crypts or follicles are not entirely destroyed or removed, the remaining portion acts as a source of irritation. The secretions are retained and upon the least exposure or irritation the trouble is set up. I find that the only satisfactory method of treatment in these cases is to destroy or remove all the stump and cicitricial tissue. If any is allowed to remain we are apt to have trouble in the future.

In this paper I have avoided the use of the term hypertrophy of the tonsil, but have confined myself to enlargement of the tonsil. I do not believe that we have a true hypertrophy of these organs, as I understand hypertrophy to be a physiological process due to hypernutrition. There is no increase in the relative number of tissue elements. There is simply over-nutrition and consequent overgrowth of existing elements, dependent upon increased supply of nutrient pabulum, but there is no new tissue not normally found in the part that takes on this excessive growth. The tissue is not diseased.

In another form of enlargement called hyperplasia there is no growth of the normal tissue elements. The increase in size depends upon the organization of the products of inflammation thrown out from the vessels in the stage of congestion and exudation.

In still another form of enlargement of an organ we have a combination of both hypertrophy and hyperplasia. In this form we have not only an increase in the normal tissue elements of the part but we also have an increase of the connective tissue elements within the organ, from the deposit of inflammatory products.

In the condition spoken of as hypertrophied tonsils we find not only an increase of the normal elements, but we have an abundance of new tissue formed, as the result of a pathological process. So that we conclude that hypertrophied tonsil, so-called, is not a simple hypertrophy but is both hypertrophy and hyperplasia combined.

In most of our text books when we find a description of the historological structure, a moderately enlarged tonsil is described. When a tonsil becomes enlarged or thickened, so that it can be observed, or feels thicker to the touch than would be produced by the reduplication or aggregation of a number of simple and compound mucous follicles, we have an abnormal product, it becomes a tumor and is a source of irritation.

The following summary of the physiology and pathology of the tonsils is derived from this paper:

That the faucial tousil is a collection of from twelve to sixteen separate and distinct simple and compound follicles and capsules, found between the anterior and posterior pillars of the fauces.

That simple and compound follicles with their capsules are found in all mucous membrane.

That the mucous follicles are not distinct glands, but are simply a folding or depression in the mucous membrane, for the purpose of increasing the surface of the membrane.

That the epithelial cells of these follicles, are the glands proper that secrete the mucus.

That the epithelial cells lining the follicles do not differ from the epithelial cells upon the smooth surfaoe of the mucous membrane in the same locality.

That the crypts of the tonsils are simply the opening into the follicles, where the mucous membrane reduplicates itself.

That in the healthy condition the space between the anterior and posterior pillars is an inverted trouth.

That the tonsil in health does not protrude but slightly beyond the surface of the membrane.

That where the tonsil protrudes beyond the pillars of the fauces that it is an abnormal condition.

That the principal function of the epithelial cell is to secrete mucus to moisten and lubricate mucous membrane.

That mucous accummulates in the follicles of the membrane, to be used when occasion demands.

That there is no proof that the tonsil is a blood elaborating organ.

That children with enlarged and diseased tonsils are not as well nourished, nor as well developed and healthy, as children with sound tonsils.

That there is not sufficient evidence that the tonsils are "leucocyte manufactories."

That the leucocytes do not reside on the tonsil any more abundantly than upon mucous membrane in other parts of the body.

That enlarged tonsils have the power of absorbing septic poisons and furnish a good media for their development.

That the tonsil is not a gland, but is an aggregation of mucous follicles, with as many openings as there are follicles.

That with our modern methods of cooking and preparing food, there is no well recognized use for the tonsil.

That diseases of the tonsils are generally the result of microörganisms or an underlying dyscrasia or constitutional taint of system.

That in health the follicles contain mucus and exfoliated epithelial cells, and that cultures of the contents are negative.

That in enlarged and diseased tonsils the contents of the follicles are filled with pathological products, the result of retrograde metamorphosis and fatty degeneration. Cultures made from their contents show the presence of microörganisms.

That impure air will not cause tonsillitis if the follicles are in a healthy condition, and there is absence of germs.

That pathogenic germs are not so apt to develop if the follicles are in a healthy condition.

That the condition of general enlargement of lyphoid tissue called "lymphoidism" depends upon a constitutional condition in the majority of cases, and requires constitutional as well as local treatment.

That tonsillitis and other inflammatory diseases of the tonsils are not always of rheumatic origin.

That the anti-rheumatic remedies that relieve this class of troubles, do so on account of their anti-germ properties.

That inflammation of the tonsils may take place in the follicle or in the adenoid tissue.

That in the partial destruction of the tonsils and follicles, we very often have inflammation taking place on account of the closing of the orifices of the remaining portion of the follicles.

That true hypertrophy of the tonsil seldom if ever takes place.

That we often have hyperplasia of the tonsils.

That enlarged tonsils are usually a combination of hypertrophy and hyperplasia.

That every enlarged tonsil is a pathological product, and that it is a tumor.

SOME OF THE ADVANTAGES OF SECTION WORK IN THE AMERICAN MEDICAL ASSOCIATION—ADDRESS OF THE CHAIRMAN.

Read in the Section of Laryngology and Otology at the Forty-third Annual Meeting of the American Medical Association, held at Detroit, Mich., June, 1892.

BY CHARLES H. BURNETT, A.M., M.D.,
OF PHILADELPHIA, PA.

Permit me to thank you for the honor you have conferred upon me in making me your chairman for this year. I welcome you to this meeting and ask your indulgence in reading you a few thoughts on the advantages of Section work in the American Medical Association.

The importance of the creation of Sections for the consideration and discussion of various branches of medical and surgical science, in the American Medical Association, has not yet been fully appreciated and can never be over estimated. It may be said boldly that the scientific value of the meetings of this Association can be maintained only by the Section-plan as now fully organized. I would even go as far as to say that the continuance of the scientific life of the American Medical Association can be maintained *only* in this way.

Such being the case, more time should be allowed for Section work, and less time taken up by the general meetings of the Association. Let the latter be purely of an executive nature and much shorter than they have been in the past. The various addresses, on medicine, surgery, hygiene, etc., heretofore read at the general meetings of the Association should be read before the correlated Sections. These addresses heretofore read before the Association in full assembly could be converted into Section transactions; let those hear who are specially interested in the subject, but let the other Sections go on with their special work at the same time. This method would save the time of hundreds of busy men, who would come more willingly a long way to attend these meetings, if they knew such a plan, as suggested, would enable them to devote more time and attention to the Section or Sections of their special choice. But men who desire to read and to hear papers on special subjects, will not take the time to write a paper or attend the meetings of the Association, if they fear that the meetings of the Sections will be too hurried to listen to papers, or what is still more important, to discuss them. This plan would divorce all scientific work from the executive sessions of the Association, a disunion in every way desirable.

The members most interested in scientific investigation and its fraternal discussion in the various Sections would find all they desire. While those more interested, perhaps, in the executive and legislative affairs of the Association, would find ample time for their very important labors, untrammeled by any scientific address, or its discussion. Some such plan as this would please all tastes and bring a larger number of physicians to the meetings of the Association, because each member, no matter what his special bent be, would know before he leaves home that he will be able to hear only what he most desires to hear, and what is still more inviting to the average man, that he will obtain a hearing, in his chosen Section.

A simultaneous meeting of Sections and of the Association for general business is greatly to be deprecated, as such a plan would lead to impairment of attendance and activity in the meetings of the general Association and of the Sections. All delegates should attend the general sessions of the Association. Therefore there should be no hindrance to such an attendance by meetings of Sections at the same time. The opportunity offered some years ago by this Association for several thousand American physicians from Maine to Texas and ocean to ocean, to meet annually in Sections, has been embraced in such a way and to such an extent as to justify the request to shorten the general sessions and lengthen the time allotted for the meetings of the Sections.

So far as pertains to the scientific work of this entire Association it matters little who are its president and subordinate officers; it is impossible for them to be bad as long as the membership is good. But it is very important that the Association shall be able to induce the profoundest students of scientific subjects, of value to the medical profession and the community at large, to come to its meetings and lay before it the results of their labors. Such men will come to the meetings if conducted on the Section plan, and they will stay away if they are not so conducted.

The establishment of the Sections as we now have them has prevented the Association from rapid degeneration into a purely social excursion. A further development of the plan, enabling the Sections to have more time and the general meetings of the Association, less time, will make it a scientific medical power in the country and in the world, and draw into its embrace the best workers in our profession throughout the United States. This will enable the Association to keep pace with other organizations which have already made use of the Section-plan of work, with results in the character of their membership and quality of their published transactions, of which we as Americans should be proud, and which we as members of the American Medical Association should endeavor to obtain in our meetings. The American Medical Association will always possess the great advantage in meeting *anually*, thus enabling investigators to lay their results before a scientific body once a year.

So much for the application of the principle of Section work to the Association at large. What shall we say of, and for ourselves? This Section is four years old, having been created in 1888. At the first meeting in Newport thirty-three papers were read, at its second meeting in Nashville, fourteen were read, at its third meeting, a year ago, in Washington only ten papers were read, though more were promised. This falling off was probably due to the illness of the chairman for that year. This year, as we are pleased to see, there are forty-four papers announced on the programme. The American Medical Association is the Charlemagne of the profession of medicine in this country; let this Section cherish the ambition of being its valiant and faithful Orlando.

Having been fortunate enough to succeed in obtaining the creation of Sections, and now having expressed the hope of gaining more time for Section work, by shortening the hours of the general sessions of the Association, it behooves us to go to work in earnest and make the existence of this Section of value to ourselves, and the profession. A direct and quick way of doing this is to prepare a paper, and attend the meeting and read it. The selection of papers deserving publication, their edition, and all matter pertaining to their publication should they increase greatly in number, might be left to a carefully chosen publication-committee. The discussions provoked by the papers read should be carefully reported by a stenographer, as they are generally as valuable as the essays.

Surely there is no channel in this country through which so large a number of physicians interested in Otology, Rhinology and Laryngology,can convey their views and the results of their labors to so large a number of intelligent hearers and readers as through this Section of the American Medical Association. Therefore, whoever is in earnest in his special work and in the desire and intention to communicate the results of his labors and have them discussed, and to learn from the writings and observations of others, should not fail to embrace the chance of doing these offered in this Section. Having obtained such an arena, from the parent Association, pride should prompt us to fill it with able contestants for the prizes sure to be gained by good scientific work. The presentation of good papers before any Section will tend to keep away bad ones. I know of an instance in which a member, not of this Section, once put himself on the programme as prepared to present a paper. When his turn came to read his essay and his name was called, he was absent. In explanation of his failure to appear he said he had heard so many good papers read, superior to his own, that when his turn came he was ashamed to read his essay. Hence one good result of presenting worthy papers is to keep out valueless articles. Men who might have come to palm off poor stuff upon an unorganized assemblage, may remain to learn when they attend a session of a well-organized Section. Thus not only the general average of excellence in the papers emanating from the American Medical Association is elevated, but its function as a teacher of the profession is amplified. Here the rhinologist and laryngologist may become better aurists while the aurist becomes a better rhinologist. Thus our usefulness as practitioners is increased and our patients benefited by our increased knowledge. For in this Section, as in any other, those interested in the same subjects can meet, discuss and learn to know not only one another but one another's ideas. Thus, we can realize the truth of the Chinese saying that "one can learn more of a man's views by half an hour's conversation with him, than by reading *all* his written works."

"Not by the possession of truth, but by the search after it, are the faculties of man enlarged, and in this alone consists his ever growing perfection." Such are the words of Lessing. May we not ponder these words with advantage and apply them to ourselves in this Section? We possess the facts relating to our specialty, of value to ourselves and others, and we are also seeking for more. Let us assemble here, impart to one another what we know and thus aid one another in the search for more truth. This will enlarge our faculties and lead to the general perfection of the Section, so that our individual imperfections shall be cleared away in its ever-growing perfection.

PAPILLOMA OF THE LARYNX.

Read in the Section of Laryngology and Otology, at the Forty-third Annual Meeting of the American Medical Association, held at Detroit, Mich., June, 1892.

BY ROBERT D. GIBSON, M.D.,
OF YOUNGSTOWN, OHIO.

The frequency with which papilloma of the larynx are met, and the difficulty often experienced in their removal prompts me to bring the subject before this body for consideration.

About 70 per cent. of laryngeal growths are of a papillomatous nature, and experience has shown that they rarely return if thoroughly removed and the stump carefully cauterized.

As to the methods of removal and means of cauterizing the stump, I would ask your attention for a few moments.

Small growths in accessible positions may be grasped with the forceps and removed without difficulty, and the stump may be cauterized with any of the usual chemical caustics; but those partly concealed and the larger growths with broad attachments (sessile) are not readily grasped with the forceps. These are torn off by pieces, and the operation is more or less incomplete, leaving much to be done by subsequent cauterization. For this purpose the

chemical caustics are not suitable, for they either do not *penetrate* deep enough, or they must be used to such an extent that they spread beyond the area desired to be cauterized and do damage to the healthy parts.

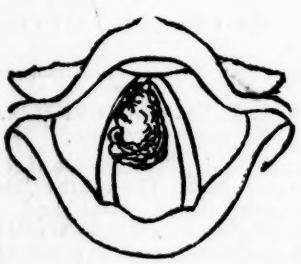
By means of the galvano-cautery these growths may be reached at any point by bending the electrode to the desired shape. Small growths may be destroyed by a single puncture, and large ones by repeating the cauterization from time to time till they are entirely destroyed.

Large growths may be removed *en masse* by means of the galvano-cautery snare; small growths are not easily caught in the loop and are best destroyed by simply puncturing them with the galvano-cautery needle.

The galvano-cautery snare possesses several advantages over the forceps for the removal of large laryngeal growths. Its action is sure, quick, painless and bloodless. The stump is cauterized at the same time the growth is removed. The galvano-cautery outfit for laryngeal work should consist of a one cell storage battery (or a suitable current controller if the street current is employed). Shech's handle, one half doz. electrodes (assorted), canula, fine wire, and connecting cables.

Everything should be in perfect working order before the throat is cocainized, as the effect of the cocaine soon passes off. With a well trained throat to operate on and everything in perfect working order, it is often impossible to reach the exact point desired, or to pass a loop over a tumor and get it properly adjusted, without a considerable loss of time. And my experience has been that when a throat is once irritated by the presence of an instrument it is not so readily controlled again that day.

The following case, of which the accompanying illustration is a faithful drawing, will illustrate the advantage of the cautery snare over the laryngeal forceps.



Laryngoscopic Image.—Papilloma, springing from the anterior two-thirds of the right vocal cord.

Mrs. ——, æt. 27 years, U. S. parentage, otherwise healthy, possessing a full contralto voice, and very fond of music, suddenly lost her voice for singing; she could not sing anything. She thought she had "strained her voice." Months passed along and the voice grew more husky, and finally the trouble began to interfere materially with breathing and conversation. Upon examination a large papilloma was found springing from the anterior two-thirds of the right vocal cord, falling down between the cords. The throat was trained for some months, by passing the forceps down into the larynx and touching the growth, without cocaine. As soon as this could be done successfully, the next step was the selection of a suitable pair of forceps with which to remove the growth. Mackenzie's long forceps were half an inch too short, Mathieu's forceps were the right length, but were not large enough in the jaws to grasp the entire growth. (Specimen exhibited, preserved in alcohol.)

Next the galvano-cautery snare was tried and selected as the only means by which the growth could be removed *en masse*. The throat was thoroughly cocainized, a four per cent. spray was used for the pharynx, and a twenty per cent. solution applied to the larynx by means of an applicator. This was repeated three times at intervals of five minutes. After three or four trials the loop was properly adjusted so that the entire mass was engaged in the loop and quickly cut off. The throat was under perfect control, there was not the least pain experienced, and not a drop of blood lost. Patient was instructed not to speak at all for four days, and not above a whisper for one week. Voice fully restored and no trace of any abnormality at the end of one year from date of operation.

In closing the discussion which followed the reading of the paper, the author explained the means employed to prevent the growths from falling into the trachea in case they should not adhere to the instrument. During the period of training the patients are instructed to take a full inspiration after the instrument is in position. The patients are not informed that the growth is to be removed at this sitting and the inspiration is taken as usual at the time the word is given. In case the growth should fall from the instrument when severed, it is at once expelled by the force of the cough which follows.

A CASE OF TUBERCULOSIS OF THE PHARYNX.

Read in the Section of Laryngology and Otology, at the Forty-third annual meeting of the American Medical Association, held in Detroit, Mich., June, 1892.

BY J. E. BOYLAN, M.D.,
OF CINCINNATI, OHIO.
PROFESSOR OF LARYNGOLOGY AND OTOLOGY, WOMEN'S MEDICAL COLLEGE, MEMBER OF THE STAFF OF THE PRESBYTERIAN HOSPITAL, ETC.

Tuberculosis of the pharynx as a primary or local affection is of such exceptional occurrence and the nature of the affection so interesting, that I need hardly apologize for reporting a single case; my only regret in doing so, is that I have not been able, since committing myself for this occasion, to review the literature so thoroughly as to be in a position to state exactly, the very short time within which each of the comparatively few cases recorded proved fatal or to enumerate the isolated ones reported to have recovered.

Mrs. B., of Carlisle, Ky., 25 years of age, six months pregnant, was brought by Dr. Ricketts, accompanied by her husband and brother, to consult with me concerning a very painful throat affection which had recently developed, and to establish, if possible, its exact nature.

The patient gave the following history: She had had a catarrhal condition of the throat for two years past which had been treated by her doctor at home with applications of nitrate of silver, but which made no progress towards recovery. About a year ago finding that she had an irritating cough, she consulted Dr. McKenzie, of Cincinnati, who informed her that she was threatened with consumption and recommended an immediate change of climate. During a six months' sojourn in the south, she had more than regained her former weight, the cough had left her and she returned some months ago believing her health entirely restored. Within the last six weeks, however, there had developed a painful condition of the throat, quite different from her former affection, which was rapidly growing worse. Although her appetite was good and she had no cough, she suffered so intensely at every attempt to swallow that she postponed taking food as long as possible, and begged for some speedy relief, so that she might again eat with comfort. Patient was fairly nourished, somewhat pale, there was noticeable enlargement of the cervical glands on both sides. Upon inspecting the pharynx the following characteristic picture presented itself:

General pallor of the mucous membrane of the hard palate was noticeable at a glance, which pallor comprised on the left side, the whole roof of the mouth as far back as the anterior pillar, while on the right side, it gradually

merged into an abnormal redness and then into a severe infiltration which remained sharply defined from the pale right side at the median line and which involved the uvula, the right anterior and posterior pillars, the tonsil and the right side of the posterior pharyngeal wall. Upon the right anterior pillar there was an oblong shallow ulceration with very irregular outline about as large as a silver three cent piece. In the immediate neighborhood of this ulceration as well as in other parts of the field of infiltration, a number of yellowish white and grayish white specks were to be seen, in places distinctly isolated, in others merging into indistinct whitish patches. At the base of the tongue on the right side was a similar irregular ulceration somewhat larger than the first; upon the tonsil a number of smaller irregular patches, which in places were confluent; upon the posterior pharyngeal wall also several filmy irregular whitish patches. Laryngoscopic examination showed the mucous membrane somewhat anæmic, the larynx otherwise apparently normal. In making a physical examination, a shorter and duller percussion note was noticeable over the left apex than over the right and a somewhat roughened expiration, beyond this I could detect nothing abnormal. After a repeated careful inspection, concurring with the opinion of Dr. Ricketts, I made a diagnosis of tuberculosis based upon the condition of the pharynx, and further assumed the unpleasant duty of notifying the husband and brother that, notwithstanding the present inactivity of the disease in the lungs a fatal and rapid termination was almost certain. They were greatly shocked and evidently incredulous. They expressed themselves as loath to accept this hopeless prognosis without further consultation and suggested that Dr. William Carson, in whose judgment they justly placed the greatest confidence, be called in. On the following morning Dr. Carson made a physical examination, as the result of which he upheld the diagnosis of tuberculosis, though he found the disease in the lungs at the time in an inactive condition.

The patient remained under my treatment for a week. Curetting, owing to the extent of the lesion, was not to be considered and the treatment was mainly directed towards relieving the suffering and facilitating nutrition. The application of cocaine and a 10 per cent. solution of menthol brought very transient relief; the cocaine had to be used each time before taking food and the menthol, when first applied, proved very painful; on the third day I began the insufflation of iodoform powder containing 1-16 gr. of morphine and was agreeably surprised at the amount of relief it afforded the patient. The effect lasted the greater part of the day so that she could swallow without pain till towards evening, and within the next three or four days there was a perceptible improvement in the condition of the pharynx.

September 23, she determined to return home where she would be more comfortable and she undertook to have the insufflations, upon which she became dependent, properly carried out.

On November 13, a letter from her husband informed us that the morphine and iodoform had proven most efficaceous. The family physician was using it and she had not only experienced very great relief but much of the sore place had healed and that she was in hopes of complete recovery.

A letter of a little later date brought news that the physician, then in charge of the case, ridiculed the idea of tuberculosis and had undertaken to treat her free of charge in order to demonstrate the error of the diagnosis arrived at in Cincinnati.

On January 8, less than two months later, word was received from the patient's husband that she had sunken into a condition of exhaustion and had succumbed to the disease, having given birth to her child some ten days before her death. Death occurred, therefore, within four months from the time the condition first made itself felt in the pharynx.

In the present state of our knowledge the question so frequently raised as to whether tubercular lesions in the pharynx and larynx are ever primary, can hardly lead to a satisfactory issue. While such lesions occur apparently independently, there will always be some ground for the sceptical to stand upon, as for example in the case of Schach who inclines to the view that when the affection is present in the pharynx, the disease always exists in the body in a dormant state, even though it be impossible to demonstrate it. Of far more practical importance is the question: "Can tuberculosis be recognized with certainty from the local lesion *alone*?" As a matter of fact we know that these lesions do present themselves at times when constitutional symptoms either do not suffice to establish the diagnosis, or can not be detected at all, and we must then depend upon the local symptoms alone, for our diagnosis. Now in scanning the literature of the few cases reported, we find the lesion produced by tuberculosis in the pharynx possessed often of such distinctive features as to greatly facilitate the diagnosis; in fact in the majority of these cases tubercular nodules themselves were plainly visible in the neighborhood of the ulcerations and were verified post-mortem by the microscope in several instances, a condition which is almost never seen in the larynx. The entirely different character of the tubercular ulcer from the ulcer caused by syphilis has been nicely pointed out by Fraenkel, and both he and Tsembert have so carefully described the changes produced by the progress of the affection in this tissue, as to render its recognition far less difficult. In what proportion of cases the nature of the disease can be detected in its incipiency may not yet be established, but its exceptionally rapid course in this region, no doubt accounts for its more characteristic appearance. In the case above reported, the minute yellowish or grayish white specks scattered irregularly over the infiltration, isolated in places, in others becoming confluent and blurred; the shallow irregular ragged ulcer, the general pallor of the mucous membrane surrounding the infiltration, the excessive dysphagia, seemingly out of proportion to the severity of the lesion, presented an array of symptoms corresponding so strikingly to those described by the above mentioned observers that although I had seen a similar condition but once before, it appeared to me impossible to mistake it for any other affection.

PAPILLOMA OF EPIGLOTTIS, ETC.

Read in the Section of Laryngology and Otology at the Forty-third Annual Meeting of the American Medical Association, held at Detroit, Mich., June, 1892.

BY A. B. THRASHER, M.D.,
OF CINCINNATI, OHIO.

Miss Pearl S., æt. 17, Springfield, Ohio, was referred to me by Dr. Langdon, March 3, 1892. The vault of the pharynx was covered with adenoid tissue, rough and lobular, which extended from the region of Luschka's tonsil back and down over the posterior pharyngeal wall to a point on a level with the upper surface of the epiglottis. This tissue was apparently about half an inch thick in the center above, and gradually grew thinner as it extended downward and toward either side.

On pressing down the tongue a reddish glandular tumor was disclosed, which, on further examination proved to be attached to the epiglottis. The tumor was about the size of a large English walnut, the surface being divided at irregular intervals by deep seams and covered by small granulations, giving it somewhat the appearance of a large lobular strawberry. It was attached to the free border of the epiglottis, rather more on the upper than the under surface. The balance of the epiglottis presented a normal appearance as to both size and color. The weight of the neoplasm was so great as to press the epiglottis downward and its size so large as to completely shut off the under parts of the larynx from the laryngeal mirror. The voice was quite husky and a nervous cough had been present for some time. There was increasing dyspnœa for some three months, this being really the symptom which caused the patient to seek relief.

After the epiglottic neoplasm had been removed (which was accomplished by means of a wire ecraseur) the interior

of the larynx was revealed. The movement of the left vocal cord was considerably impaired by some small sessile growths in the ventricle and over the left ventricular band, macroscopically quite like the tumor on the epiglottis.

After the lapse of two months there is as yet no tendency toward a recurrence of any of this tissue (that in the nasopharynx and larynx having been removed by curette and galvano-cautery). No microscopic examination of the tissue was made, but the clinical history points to papillomata of larynx, while the pharyngeal growth seemed to differ in no respect from that which I have in other cases classed as adenoid tissue.

Discussion.

Dr. Casselberry, Chicago:—Concerning the diagnosis of laryngeal neoplasms Felix Semon has called attention to the fact that carcinoma, tubercle, etc., may have superficial papillomatous excrescences and that in order to get a correct result by microscopic examination, its entire growth must be examined. It is because this is rarely possible during life or before radical operation that the microscopic diagnosis of laryngeal growths is so unsatisfactory concerning the removal of laryngeal papillomata; I am glad to hear the galvano-cautery advocated. At the International Congress at Washington, in 1887, I had the pleasure of opening a discussion on this subject, and my paper consisted chiefly in advocating a specially constructed electrode for destruction of small sessile papillomata located on, above, or beneath the vocal cord. The idea was then criticised, among others, by Mr. Lennox Browne, who hesitated to use this instrument below the line of the epiglottis; under cocaine, however, I failed to see sufficient reason for such restriction. The electrode then exhibited has the correct laryngeal angle and descending arm has an anterior curve, the convexity of which assists in drawing forward the epiglottis. It is armed at the end with a short platinum loop from 4 to 6 inches in length, which can be bent to either side and made to impinge beneath the vocal cord when necessary. It has no shield because such only increases its bulk and interferes with vision, and because it is unnecessary, for the careful operator having introduced the instrument cold, will press the platinum loop outward against the neoplasm and away from the opposite side before heating it.

In certain cases it is superior to forcep because it will penetrate under illumination to points, such as the anterior commissure or beneath the cords, to which forceps, by reason of their larger size cannot pass, at least without obstruction to light and interference with vision.

Large growths, when possible, would best be removed by forceps and the base subsequently cauterized. The snare would require great caution to be exercised to avoid possible dropping of the neoplasm into the trachea. Concerning cocaine, care is necessary, strong solutions—20 per cent. on cotton application, and 10 per cent. in spray, are required to anæsthetize the larynx. These are capable in susceptible individuals of producing dangerous toxic symptoms. Before operating the susceptibility of the patient to cocaine should be tested at previous sittings; and if at the same time we train the patient by passing probes, etc., as was formerly customary before the use of cocaine, success will be more readily attained and by the use of less cocaine.

Dr. Casselberry, Chicago:—I would call attention to Dr. DuBlois' method of operating, *per vias naturales* by the finger nail. I believe it to be perfectly feasible, the larynx is high in children and can be reached and the soft papillomatous growths thoroughly scraped out of the larynx by a long finger-nail. If necessary an anæsthetic could be given and the procedure facilitated by pushing the larynx upward from without by the other hand.

I am disposed to deprecate thyrotomy as dangerous and often unsatisfactory. I recall a case in which a structure subsequently formed which together with recurrence of the growth finally caused death one night when the tracheotomy tube accidentally became dislodged.

Also another case in which recurrence necessitated the wearing of an intubation tube for years. I am disposed to avoid thyrotomy as much as possible, dealing tentatively with them by tracheotomy, intubation, and intralaryngeal manipulation until the child grows older.

Dr. Gibson:—The remarks of the several gentlemen who have spoken, are evidence that we have had much the same experiences under like circumstances.

The small size of the electrode or canula as compared with the forceps renders it possible to see exactly what we are doing.

To prevent the loss of the growth, by falling into the trachea, I instruct the patient to take a full inspiration just before I sever the growth. The patient had been repeatedly instructed to do so during the period of training, and did not have any idea as to my purpose at the time of removal. The object of this precaution is quite obvious.

To prevent toxic effects of cocaine, it has been my practice to instruct every patient in which cocaine is used in the upper air passages to *refrain from swallowing*, and have never experienced any constitutional effects of the drug when this instruction was followed.

The remarks on the occasional disappearance of papilloma after the use of stimulant and astringent, brings to mind what has frequently been debated in my mind, viz.: During the years that I was engaged in general practice it was my custom, when asked the best way to remove warts from the hands, to instruct them to apply castor oil thoroughly, and invariably the warts would vanish in a very short time.

Dr. Seiss has seen laryngeal papillomata absorbed under applications of iodine, etc. In structure these growths are the same as the ordinary dermal warts, which are well known to undergo absorption under mild applications of silver nitrate, etc.

Dr. Price Brown, Toronto, referred to a case of papilloma of left vocal cord, in a gentleman age 55, who was compelled to use his voice as his daily occupation. This was relieved and contraction of the papilloma secured by applications of thuja occidentalis, followed by treating with 10 per cent. of menthol in cellulose. Also to a case of double fibroma of larynx in a gentleman aged 37, suffering at same time from aneurism of aorta, the one arising between right arytenoid and right ventricular band, and projecting inwards over the glottis, impeding respiration; the other springing from right side of larynx immediately beneath the vocal cord. Under cocaine these were removed at a number of different sittings by galvano-cautery points, with result of relieving the dyspnœa. Some time afterwards the patient died of aneurism of aorta. The larynx which I obtained at the post-mortem exhibits the cicatrix of lower growth but not of the upper.

Dr. Lowman, Cleveland, O.:—A case of papilloma that passed under my observation proves that papillomata sometimes tend spontaneously to recovery. The patient was a child who had been hoarse for some months, and had rapidly grown dyspnœic in the last few weeks immediately preceding his application for relief. When first seen the breathing was so difficult that the face was cyanotic.

Laryngoscopic examination revealed a growth almost filling the chink of the glottis. Prompt interference was necessary and was obtained by a tracheotomy. Pneumonia and a prolonged illness followed the operation. After the recovery of the patient from the acute disease, the growth was inspected and found to have diminished in size. Repeated examinations at intervals of a few weeks showed that the growth was gradually becoming smaller. In less than a year all evidence of its appearance had disappeared. There had been no treatment whatever, unless the rest the tumor gained by reason of the tracheotomy can be considered treatment. The air passes through the larynx rapidly, and especially when the glottis is partially filled, and the opening into the trachea very much contracted. For this reason it may be that the papillomata grow more rapidly or swell more rapidly as the breathing grows more difficult and the friction greater.

The case shows that a papilloma may disappear, providing the larynx has rest from the air currents.

It is likely that the papilloma that disappears under treatment with astringents would subside under volitional or partial rest of the larynx.

Dr. Wadler, Indianapolis, called attention to the need of preparatory treatment, and said it was his custom to use stypics and astringents at the time, and frequently has witnessed their disappearance under such treatment. He also wished to emphasize the suggestion of Dr. Casselberry, of great caution in the use of cocaine, as he had witnessed dangerous symptoms in his early experience prior to his learning to exercise this great care.

Dr. Boylan said:—I have been interested in this case, in that I have one at present under treatment of a similar nature, excepting that the tumefaction is considerably larger: it being attached at and just below the anterior commissure and extending back so as to leave a comparatively small space for respiration posteriorly. The case was treated for asthma for some time till the tumefaction was finally discovered and came finally under my treatment. I hesitated for some time whether to perform tracheotomy at once or to attempt the removal through the pharynx. I finally decided

to prepare for rapid tracheotomy and to then adopt the latter course. I succeeded in removing over one-half of the growth with the forceps, and thus averting the immediate danger of asphyxiation. Now while I appreciate all the advantages mentioned by the previous speakers in favor of the galvano-cautery, I doubt if I shall be successful in reaching the remainder of the growth with the cautery, owing both to the age of the patient, who is a boy six years of age, and to the location of its attachment, and I am inclined to believe that I will stand better chances of reaching it with Schrotter's forceps.

ORBITAL AND OCULAR GROWTHS.

REPORT OF FOUR CASES WITH TWENTY-TWO PHOTOMICROGRAPHIC ILLUSTRATIONS.

Read in the Section of Ophthalmology at the Forty-third Annual Meeting of the American Medical Association, held at Detroit, Mich., June, 1892.

BY JOSEPH A. WHITE, A.M. M.D.,

SENIOR SURGEON TO THE RICHMOND, VA., EYE, EAR, THROAT AND NOSE INFIRMARY.

AND WM. M. GRAY, M.D.,

PATHOLOGIST OF THE ARMY MEDICAL MUSEUM, WASHINGTON, D. C.

I present these cases of tumors of the eye and orbit from my clinic at the Richmond, Va., Eye, Ear & Throat Infirmary operated on during this year, 1892, because I thought they were of sufficient interest for consideration. One is a case of melanotic sarcoma of the choroid that has as yet had no recurrence, but as this character of tumor is metastatic, there may be some manifestations of the same kind of growth elsewhere. The second is a sarcoma of the orbit which recurred twice after the original growth and eye were removed. The other two were growths of the orbit intimately connected with the periosteum; one in a woman 58 years of age, the other in a girl 16; one from the inner side of the orbit, extending from the orbital edge back and behind the eye to the sphenoidal fissure, the other from the external side following the same direction, and producing an apparently similar pathological condition of the eye and its annexes. Cases one and three were operated on by myself; cases two and four by Dr. John Dunn, Chief of Clinic at the Infirmary.

Case 1. Melanotic Sarcoma of the Choroid.—Geo. W. Wingfield, aged 54 years consulted me first, May 30, 1890. The left eye was blind, slightly exophthalmic, tension increased, the cornea clouded, the anterior chamber abolished, and the whole upper and outer part of the sclerotic of a dense black color. I diagnosed melanotic growth of the eye, and advised enucleation. This he declined to have done, and went home. I heard nothing from him until February 6, 1892, when he presented himself at my office with the eye so enormously enlarged that the lids could not be closed over it, the whole of the sclerotic perfectly black; patient suffering constant and excruciating pain. I gave him the same advice as before, and he consented to the removal of the eye. As cocaine had very little effect in anæsthetizing the eye, I gave chloroform, althogh I rarely have recourse to anything but cocaine in enucleation, and removed the globe. It was so distended, I was obliged to split the outer canthus to get it out of the orbit. Fearing the growth extended backward along the optic nerve sheath I grasped the nerve with a stout pair of fixation forceps before I cut the eye loose, so as to draw it out, and remove as much of it as possible. This I did after enucleating the eye, drawing the nerve out with the forceps already in position as far as possible, then putting another pair behind them and pulling again hand over hand as it were, and in this way I cut off about three-quarters of an inch of the nerve.

The eye was placed in Muller's fluid and sent to Dr. Wm. M. Gray, pathologist of the Army Medical Museum in Washington, and I append his report of the condition of the eye. I saw this patient on May 30 when the socket was clean and no signs of recurrence. I inserted an artificial eye and he returned home.

Dr. Gray sent me the following report of his examination of the eye; with the accompanying photographic plates and microscopic slides, both prepared by him in his laboratory.

SPECIMEN A.—Fig. 1. Large round and large spindle cell melanotic sarcoma of eye; developing from choroid coat.

Fig. 1. Shows a longitudinal antero-posterior section through the entire eyeball, and its contained tumor.

The tumor is composed of two seemingly distinct masses; one an intensely pigmented growth forming the peripheral portion, and a central mass, which is very slightly pigmented. The outer pigmented portion is made up of large round, spindle and stellate pigment cells, with a few small

Figure 2.

round unpigmented cells. The slightly pigmented central portion of the growth is composed of large round cells, somewhat epitheloid in appearance, and large spindle cells arranged in circular masses around small blood vessels; the walls of these blood-vessels are quite thick, and are composed of dense fibrous connective tissue. Fig's 2 and 3 show the circular cell masses in the slightly pigmented portion.

Fig. 4. one of the circular cell masses on the border of the dense pigment portion. Fig. 5 shows the large round cells composing the greater portion of the entire growth; it is taken on the border of the densely pigmented portion, and contains a number of large round pigment cells. Fig. 6 from the same locality shows the same cells with an irregu-

lar shaped large spindle pigment cell, and several pigment masses. Fig. 7 shows the large spindle cells composing a portion of the central unpigmented circular cell masses. The greater portion of the sclerotic coat is obliterated by the pigmented growth with which it is infiltrated, and shows in several places the growth passing out into the orbit. Fig. 8. The retina has entirely disappeared.

Figure 3.

Case 2.—Malignant Growth of the Orbit.—(Report given me by Dr. Dunn.) The patient, a full-blooded negro, aged 19 years, came Nov. 6, 1890, to the clinic of the Richmond Eye, Ear and Throat Infirmary. He had a growth protruding from between the lids of his left eye. This growth had made its appearance about nine months before, the patient being then 18½ years of age. The negro said that in July, 1890, the growth had been partially removed, not entirely, for he had been told that a small piece of it still remained. Since

Figure 4.

July the tumor had grown so rapidly that the day the negro came to the clinic it completely filled the inter-palpebral space, and the eye ball could be seen only by raising the upper lid. Examination of the tumor showed that it consisted of two parts, an encapsulated central part and its prolongations along the conjunctiva and subjunctival tissue of the lower cul-de-sac. The encapsulated portion was about the size of a hickory nut, and projected from the orbit below the eye ball, which it pressed upward and backward, and the movements of which it greatly hindered. The lower half of this central part protruded from between the lids and pressed so firmly against the inner canthus that the caruncle could not be seen. The prolongations from the surface of the main body of the growth had completely filled the lower cul-de-sac of the conjunctiva to within a few mm. of the outer canthus.

Figure 5.

The eye ball was perfectly healthy; so was the upper half of the ocular conjunctiva and the conjunctiva below immediately adjacent to the cornea. Centrally below, however, were seen running from the tumor to the edge of the cornea perhaps half a dozen small blood-vessels; these were all within a space of 6 mm. breadth. The surface of the tumor was red, rough, and, in places, warty, and was covered with a copious, dirty, purulent secretion. The tumor, though not

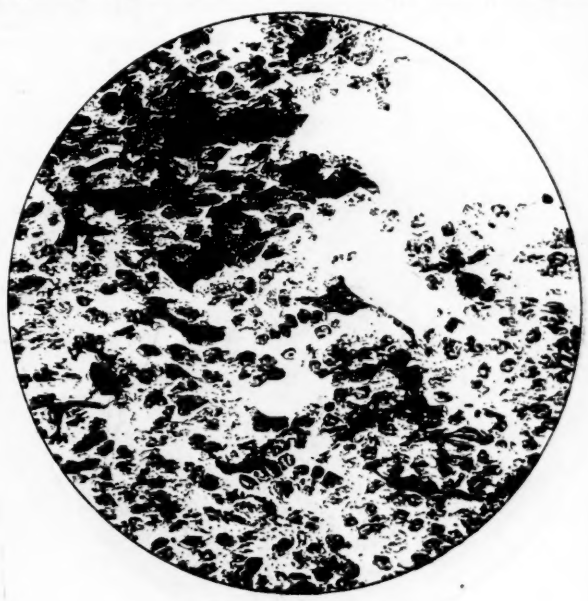


Figure 6.

painful in itself, was very sensitive to the least pressure, even when made through the lids.

Under cocaine, a small portion of the tumor was removed for microscopic examination, and patient was told to return in two days. The microscopic examination was unsatisfactory.

On Nov. 8, the patient returned. The growth was perceptibly larger than it was two days before, and I proceeded to remove it. An external canthotomy was done; then th

conjunctiva of the upper half of the ball was cut as in an enucleation, and the tendons of all the muscles, except the inferior rectus were cut. The nerve was next severed, and then the eye and the tumor were turned of the orbit from above, after which no trouble was had in removing the growth in what seemed its entirety. The main body of the tumor had the following measurements: From above downward, 32 mm., length 25 mm., from before backward, 15 mm.

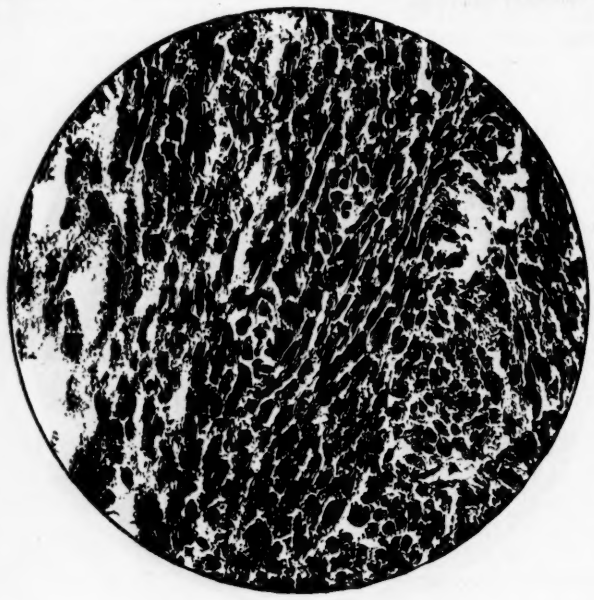


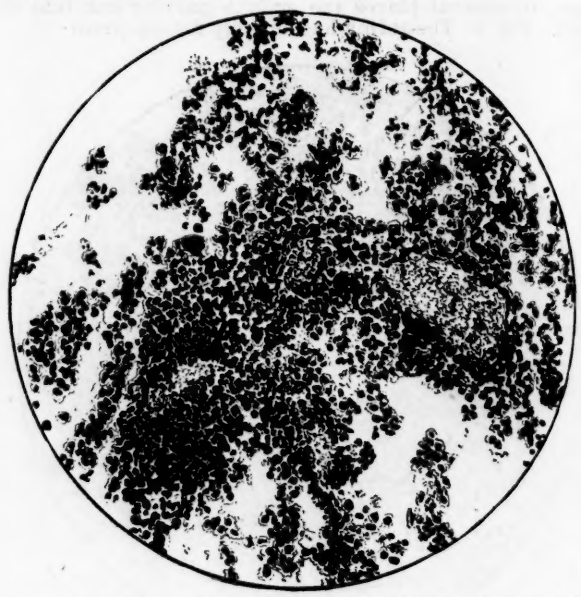
Figure 7.

The negro, who was a sailor, came to the clinic to have his eye dressed only for four days, after which time he joined his vessel.

He returned in January 1892. Up to January 1, there was no return of the tumor. It began to reappear early in this month, and by the 21st, it was two-thirds the size of a lemon, filling entirely the orbit, and protruding in a large mass from it. It was immovable in the orbit. Removed under chloroform. Found to have for the most part, a firm capsule, which was adherent to the eyelids, and everywhere to the walls of the orbit, even as far back as the entrance of the optic nerve. Large portions of the periosteum of the orbit stripped off in attempt to remove tumor. Orbit cleaned out. There were several sacs present in the tumor. Rupture of one showed it to be filled with thick cellular juice. Diagnosis, fibro-cystic sarcoma. Wound healed by remains of lid adhering to walls of orbit as far back as possible. No return up to May 30, 1892.

Figure 8.

The growth was also sent to Dr. Gray, who gives the following report with illustrations.



SPECIMEN B.—Fig. 9.—Small and Large Round Cell, Giant Cell Sarcoma of Orbit.

This growth is composed of round cells of various sizes; the larger cells have a very close resemblance to epithelial cells; in number the smaller cells predominate. Scattered through the cell mass are numerous typical giant cells, also some large round or irregular shaped cells, with multiple nuclei, which have not the characteristic appearance of giant cells, being almost entirely lacking in cell protoplasm.

There is very little intercellular tissue in the growth, no distinctly formed fibrous intercellular tissue, the cells seem to be connected by a finely granular material.

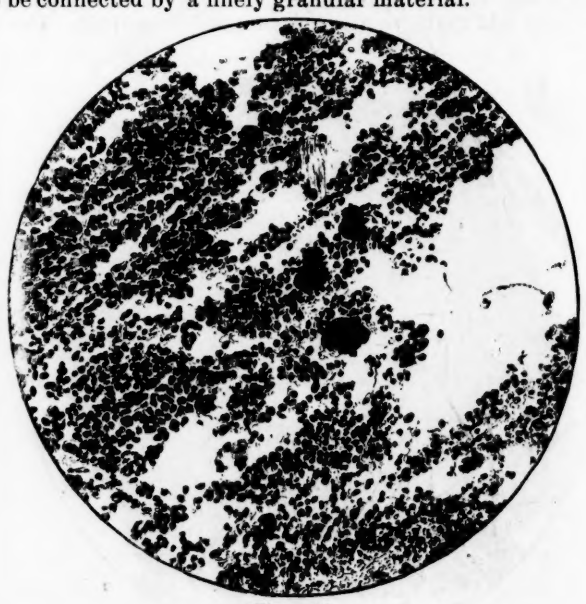


Figure 10.

The growth is quite vascular, some of the blood vessels have distinct fibrous walls, others are mere channels between the cells as shown in Fig. 9. Fig's. 10 and 11 of the same field show the round cells composing the body of the tumor, with a group of three giant cells. Fig. 12 shows several of the irregular shaped cells composed of multiple nuclei with a minimum of cell protoplasm.

Case 3.--Fibroma of the Orbit.—Mrs. S. C. Robinette, 58 years of age, of Crewe, Va., consulted me on February 15, 1892. She had been suffering great pain in the left side of her face for about three months, especially under and to the na-

sal side of the eye. It was thought at first that she had some trouble of the antrum. When I saw her the eye was tilted upwards, slightly exophthalmic, motion downwards was impeded, the inferior rectus being paretic, and there was pain on pressure over the inner and lower orbital edge. The vision was 20-30 with +1D. The refractive media were clear, but the optic nerve was engorged resembling "Stauung's papilla."

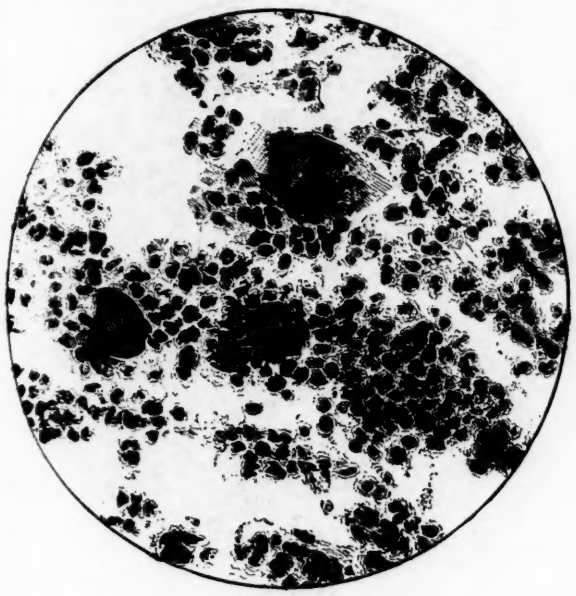


Figure 11.

By pushing the eye up and out and making firm pressure down and backwards under it at the inner orbital edge, a well marked projection be felt on the wall of the orbit. On the 16th, I exposed the orbital edge by an incision through the lid and attempted to remove the growth without enucleating the eye. I found it projected too far back in the orbit to do this successfully, and as I had not asked her permission to remove the eye, which was perfectly good as above shown, I contented myself with taking away as much of the growth as I could and sent it to Dr. Gray for examination

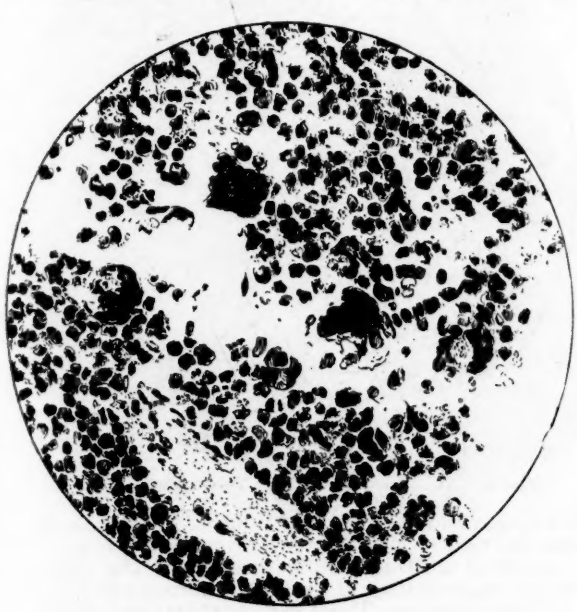


Figure 12.

He reported it was composed of fibrous tissue, was not malignant, but thought the eye ought to removed, so as to thoroughly enucleate the remains of the growth. On March 29, I again operated by removing the eye and tumor as far back as I could. 1 found it extended to the sphenoidal fissure and possibly passed into the cranial cavity, as I am satisfied I simply amputated the growth at the bottom of orbit instead of removing it in toto. I sent this also to Dr Gray and asked him to make a report and give me sections I also sent the eye, thinking it might prove valuable for miscroscopic examination, being almost normal. I saw the patient again on April 27 and found no signs of the tumor in the orbit. Whether she will have a recurrence I cannot say with certainty, but think it probable.

Dr. Gray reported as follows, sending photos to illustrate his report:

SPECIMEN C.—Figure 13.—Soft Fibroma of Orbit.

This growth is made up of two portions; a central zone composed of very fine dense fibres, which have undergone some degeneration, probably due to pressure, and an outer zone composed of small and large bands of dense fibrous connective tissue running in all directions; the connective tissue of the outer zone is very rich in nuclei and very vascular; the nuclei are composed of small round and small spindle cells. Some of the blood-vessels of the outer zone have well formed walls, but the majority are simple chan-

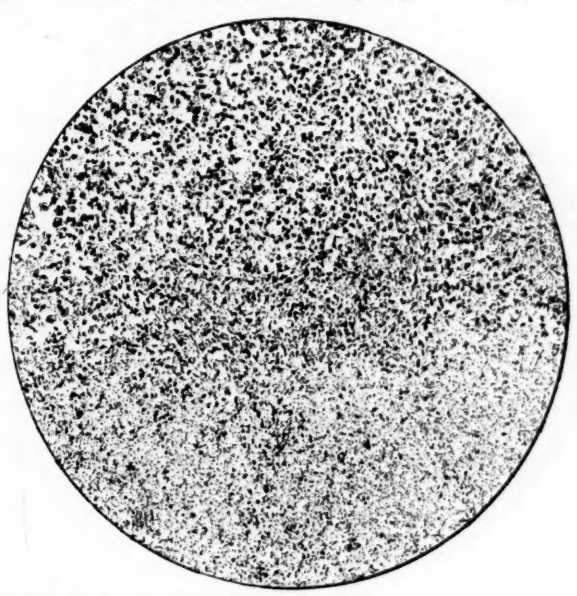


Figure 14.

nels, well defined, with sometimes a single layer of cells forming their walls. Figures 13 and 14 show portions of the central and outer zones. Figures 15 and 16 show the richly nucleated fibrous outer zone, with the small blood channels. Figure 17 shows a very richly nucleated portion with two of the larger blood channels, whose walls are ormed by a single layer of cells.

Case 4.—Tuberculous Growth of Orbit.—(Report given me by Dr. Dunn.) Mary, aged 16, first had eye trouble in August, 1891, no clear history of course but probably traumatic. First seen in May, 1892. Protrusion of left eye, apparent paralysis of left upper lid. Tangent to cornea O. S. 7 mm., in advance of tangent to anterior surface of cornea of O. D. Movement of the eye impeded in all directions. Diplopia

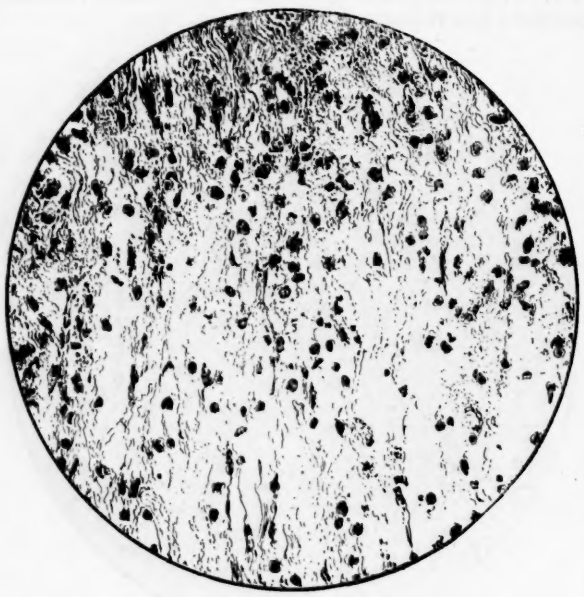


Figure 15.

when patient looks to the left. V. = 20-30. No inflammatory symptoms, overfilling of vessels over the insertion of external rectus O. S. No pain upon pressure upon ball. Severe neuralgic attacks about the eye. Just below external angle of the orbit, contiguous with the bone can be felt a hard, firm though perhaps slightly elastic, immovable growth, which extends back into the orbit. The width and thickness of the portion of the growth that can be felt is

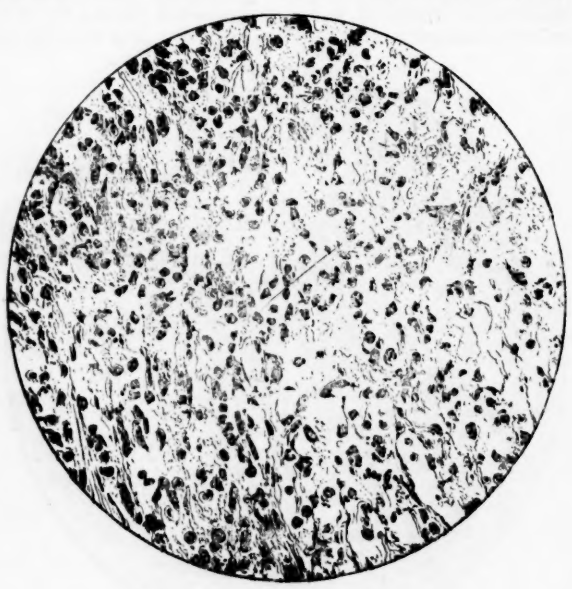


Figure 16.

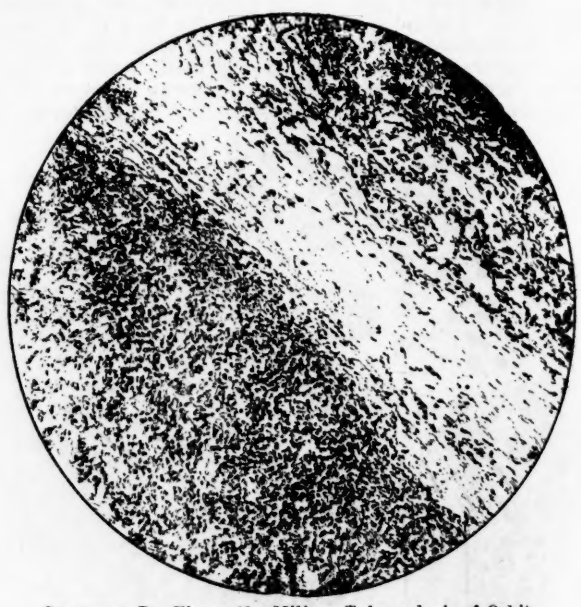
about that of a lead pencil. To the touch, so hard, incompressible and immovable was this part of the growth, that it suggested osteoma.

In no degree painful on pressure. Operation, outer canthus split. Vertical downward incision, about 1 inch; flap held back with a thread. Tumor found adherent to the edge of the orbit, and to the periosteum of the orbital plates of the malar, superior maxilla and sphenoid. Origin near entrance of optic nerve into orbit; but not from optic fibrous sheath. Adherent to external rectus. Eye saved; vision good. Wound healed by first intention. Probably internal squint, due to cutting the external rectus.

This growth was peculiar in shape. It resembled a small pear which had been compressed, the base at the orbital edge, the apex and stem far back in the orbit. It was about three quarters of an inch wide at the base and tapered to a

Figure 17.

point with a long cord-like projection about three quarters of an inch long. The length of the growth itself was more than an inch. It was sent to Dr. Gray who gave me the following interesting report:



SPECIMEN D.—Figure 18.—Miliary Tuberculosis of Orbit.

This specimen is composed of bands of very dense fibrous connective tissue; between the fibrous bands is an extensive lymphoid infiltrate, while throughout the tissue are numerous aggregations of these cells, forming nearly typical miliary tubercles. These cell aggregations differ from the typical tubercles in not containing giant cells. The tissue contains giant cells however, but they are only found far removed from the tubercles among the cells infiltrating the fibres.

Repeated attempts at staining failed to demonstrate tubercle bacilli in the tissue.

Fig's. 18 and 19 show the lymphoid infiltrate between the connective tissue fibres.

Fig. 20 shows two of the cell aggregations forming the so-called miliary tubercles.
Fig. 21 one of the tubercles more highly magnified.
Fig. 19 also shows two giant cells imbedded in the infiltrating cells.
Fig. 22 one of the giant cells more highly magnified.

In case 1 the growth seems to have started from the ciliary body between the superior and external rectus,

Figure 19.

and gradually involved other portions of the uveal tract, but at no time did it perforate the coats of the eye, as far as could be determined macroscopically, but the microscope shows it had extended through the sclerotic. As a melanotic tumor is among the rarer forms of intraocular growths I considered it of sufficient interest to present here.

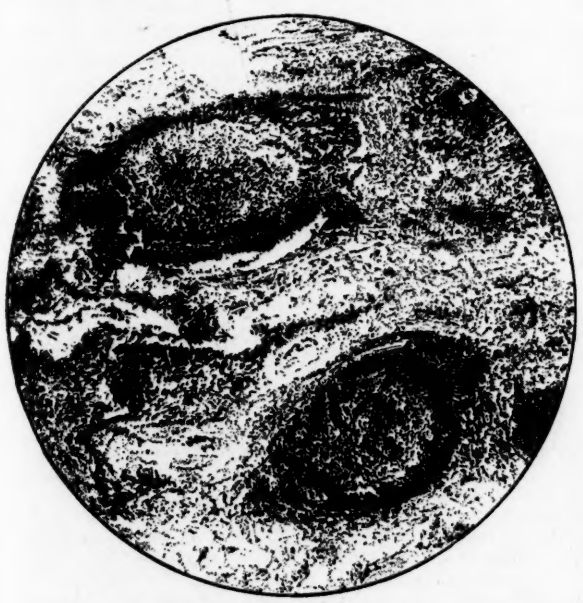


Figure 20.

Case 2 was seen at too late a stage of the development of the neoplasm to determine its point of origin with certainty, but it probably developed in the subconjunctival tissue below the eyeball, as even when the enucleation became imperative, the eye was perfectly healthy, and the tumor had no attachments to the latter except by a band of tissue uniting it to the sclero-corneal margin. It was a purely extra-ocular growth, developing in the loose subconjunctival tissue and enveloped in a dense connective tissue capsule, which whilst connected with the orbital walls completely isolated the tumor from the deep orbital tissues.

Figure 21.

Case 3 is of interest from the fact that it was fibroid apparently originating from the orbital portion of the superior maxilla, as this was the only point of close attachment, except at the bottom of the orbit, where it seemed attached to the sphenoid, if it did not pass into the cranial cavity.

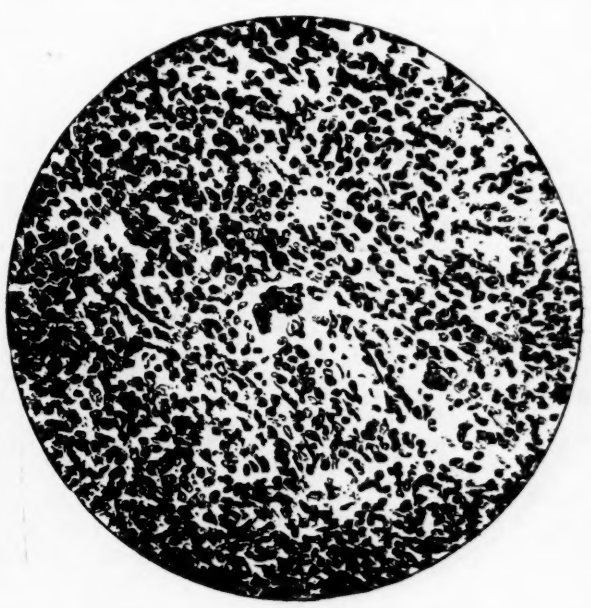


Figure 22.

There was no evidence of its originating from any of the neighboring cavities, and had no attachments to any of the contiguous bony structures.

Case 4, a tuberculous growth as reported by Dr. Gray, was to me different from any orbital tumor I

had ever seen. Its point of origin could not be determined, but it seemed firmly attached to the outer and lower orbital wall, and after its marginal adhesions had been freed, it was easily enucleated with knife handle and finger. I assisted Dr. Dunn in the operation, and I found little trouble in tearing up the attachments, after I was able to get my finger behind it. It seemed to be encapsulated and came away solidly and with perfect contour. I suppose others have seen similar orbital growths, but I can find little or nothing in regard to them in the literature accessible to me. How a growth microscopically analogous to, if not identical with miliary tubercle could develop in such a subject, I do not understand.

The girl is an exceptionaly stout, sturdy, hearty individual with no signs of disease of any other organ, a picture of perfect health.

This fact and the rarity of this form of orbital tumor makes the case a particularly interesting one.

In conclusion, I wish to express my appreciation of Dr. Gray's excellent work in his part of this contribution to the proceedings of the Section, as without his help my record of these cases would have had little interest.

I have also to thank Dr. Dunn for writing up the cases he operated on at the clinic, especially as one of them, case 4, is the most interesting one presented.

EARLY NATIONAL LEGISLATION ON THE SUBJECT OF QUARANTINE.

BY STEPHEN SMITH, M.D.,
OF NEW YORK.

(*Concluded from page 412.*)

During the summers of 1796 and 1797 the yellow fever again prevailed widely and increased the public alarm by the extension of its area and the fatality of its attacks.

On the opening of the Fifth Congress, at Philadelphia, November 23, 1797, the President, John Adams, commenced his speech to the Houses as follows:

"I was for some time apprehensive that it would be necessary, on account of the contagious sickness which afflicted the city of Philadelphia, to convene the national legislature at some other place. This measure it was desirable to avoid, because it would occasion much public inconvenience and considerable public expense, and add to the calamities of the inhabitants of this city, whose sufferings must have excited the sympathy of all their fellow-citizens; therefore, after taking measures to ascertain the state and decline of the sickness, I postponed my determination, having hopes, now happily realized, that, without hazard to the lives or health of the members, Congress might assemble at this place, where it was next by law to meet. I submit, however, to your consideration whether a power to postpone the meeting of Congress, without passing the time fixed by the Constitution, upon such occasions, would not be a useful amendment to the law of 1794."

In the address of the House in response to the speech of the President, which it was at that time customary to make, the subject was noticed as follows:

"While our sympathy is excited by the recent sufferings of the citizens of Philadelphia, we participate in the satisfaction which you are pleased to express, that the duration of the late calamity was so limited as to render unnecessary the expense and inconvenience that would have been incident to the convention of Congress in another place, and we shall readily attend to every useful amendment to the law which contemplates the event of contagious sickness at the seat of government."

Congress does not seem, however, to have taken any action at this session.

During the summer of 1798 yellow fever again appeared, and this time it attained the proportions of a national scourge. It prevailed at Portsmouth, N. H.; Boston and Salem, Mass.; Westerly, R. I.; Hartford, Stonington, New London and Norwalk, Conn.; New York; Bridgeton and Woodbury, N. J.; Philadelphia, Marcus Hook and Chester, Pa.; Wilmington, Christina, Duck Creek and New Castle, Del.; Baltimore, Md.; Norfolk, Petersburg and City Point, Va.; Charleston, S. C.

At the opening of the third session of the Fifth Congress, December 8, 1798, President Adams thus addressed the two Houses:

"While with reverence and resignation we contemplate the dispensation of Divine Providence in the alarming and destructive pestilence with which several of our cities and towns have been visited, there is cause for gratitude and mutual congratulations that the malady has disappeared, and that we are again permitted to assemble in safety at the seat of government for the discharge of our important duties. But when we reflect that this fatal disorder has within a few years made repeated ravages in some of our principal seaports, and with increased malignancy, and when we consider the magnitude of the evils arising from the interruption of public and private business, whereby the national interests are deeply affected, I think it my duty to invite the legislature of the Union to examine the expediency of establishing suitable regulations in aid of the health laws of the respective States; for, these being formed on the idea that contagious sickness may be communicated through the channels of commerce, there seems to be a necessity that Congress, who alone can regulate trade, should frame a system which, while it may tend to preserve the general health, may be compatible with the interests of commerce and the safety of the revenue."

Petitions were prepared to be laid before Congress, both in Philadelphia and New York, asking aid of the general government. The Philadelphia committee went so far as to propose non-intercourse with the West India ports during the dangerous months of the season. The New York committee objected to such stringent measures, and a modified memorial was adopted. The health officer of New York, Dr. Richard Bayley, urged the formation of quarantine establishments at a proper distance from seaport cities, where ships could be examined and, if necessary, thoroughly cleansed and disinfected.

The subject was again brought before Congress by Mr. Smith, of Maryland, who was now chairman of the Committee of Commerce, as appears from the following extract from the Annals of Congress:

"On Wednesday, January 23, 1799, Mr. Smith, of Maryland, from the Committee of Commerce, reported a bill respecting quarantine and health laws, which was read and committed.

"On Monday, January 28, 1799, on motion of Mr. Smith, of Maryland, the House went into a committee of the whole, on the bill respecting quarantine and health laws; Mr. Rutledge in the chair.

"The bill was read as follows:

"SECTION 1. *Be it enacted, etc.*, That the quarantine and other restraints which shall be required and established by the health laws of any State, or pursuant thereto, respecting any vessel arriving in, or bound to, any port or district thereof, whether from a foreign port or place, or from another district of the United States, shall be duly observed by the collectors, and all other officers of revenue of the United States, appointed and employed for the several collection districts of such States respectively, and by the masters and crews of the several revenue cutters, and by the military officers who shall command in any port or station upon the sea-coast; and all such officers of the United States shall be, and they hereby are, authorized and required faithfully to aid in the execution of such quarantine and health laws, according to their respective powers and precincts, and as they shall be directed from time to time by the Sec-

retary of the Treasury. And the said Secretary shall be, and is hereby authorized, when a conformity to such quarantine and health laws shall require it, and in respect to vessels which shall be subject thereto, to prolong the terms limited for the entry of the same, and the report or entry of their cargoes, and to vary or dispense with any other regulations applicable to such reports or entries: *Provided*, That nothing herein shall enable any State to collect a duty of tonnage or impost without the consent of the Congress of the United States; *And provided*, That no part of the cargo of any vessel shall, in any case, be taken out or unladen therefrom otherwise than as by law is allowed, or according to regulations hereinafter established.

"SEC. 2. *And be it further enacted*, That when, by the health laws of any State, or by the regulations which shall be made pursuant thereto, any vessel arriving within a collection district of such State shall be prohibited from coming to the port of entry or delivery by law established for such district, and it shall be required by such health laws that the cargo of such vessel shall, or may be, unladen at some other place within or near to such district, the collector authorized therein, after due report to him of the whole of such cargo, may grant his special warrant or permit for the unloading and discharge thereof, under the care of the surveyor, or of one or more inspectors, at some other place where such health laws shall permit, and upon the conditions and restrictions which shall be directed by the Secretary of the Treasury, or which such collector may, for the time, reasonably judge expedient for the security of the public revenue: *Provided*, That in every such case all of the articles of the cargo so to be unladen shall be deposited, at the risk of the parties concerned therein, in such public or other warehouses or inclosures as the collector shall designate, there to remain under the joint custody of such collector and of the owner or owners, or master or other person having charge of such vessel, until the same shall be entirely unladen or discharged, and until the goods, wares or merchandise which shall be so deposited may be safely removed, without contravening such health laws; and when such removal may be allowed, the collector having charge of such goods, wares or merchandise may grant permits to the respective owners or consignees, their factors or agents, to receive all goods, wares or merchandise which shall be entered and whereof the duties accruing shall be paid or secured according to law, upon the payment by them of a reasonable rate of storage, which shall be fixed by the Secretary of the Treasury for all public warehouses and inclosures.

"SEC. 3. *And be it further enacted*, That there shall be purchased or erected, under the orders and with the approbation of the United States, suitable warehouses, with wharves and inclosures, where goods and merchandise may be unladen and deposited, from any vessel which shall be subject to a quarantine, or other restraint, pursuant to the health laws of any State as aforesaid, at such convenient place or places therein as the safety of the public revenue and the observance of such health laws may require: *Provided*, That the site of all such warehouses and wharves, with such other adjoining lands as may be necessary for the public uses hereby authorized, shall be ceded to the United States by the State wherein the same shall be.

"SEC. 4. *And be it further enacted*, That when by prevalence of any contagious or epidemical disease in or near the place by law established as the port of entry for any collection district, it shall become dangerous or inconvenient for the collectors or other officers of the revenue employed therein to continue the discharge of their respective offices at such ports, the Secretary, or in his absence, the Comptroller of the Treasury of the United States, may direct and authorize the removal of the collector, and the other officers employed in his department, from such port to any other more convenient place within, or as near as may be to such collection district, where such collector and officers may exercise the same authorities, and shall be liable to the same duties, according to existing circumstances, as in such lawful port or district; and of such removal, public notice shall be given as soon as may be."

The following discussion ensued:

"Mr. Livingston, of New York, moved to strike out the proviso at the close of the third section, as it might, in his opinion, be productive of delay in some cases, and of danger in others. Some of the State legislatures might not be in session before the evil intended to be guarded against returns upon us, and it might interfere with the jurisdiction of towns or cities of which those sites form a part. He knew that there were some gentlemen in the House who think no money ought to be expended by the United States for any public works until cessions of the jurisdiction are made. This may be proper, with respect to forts and magazines with which State jurisdiction might interfere; but this being merely a civil jurisdiction, and so far from interfering with any State jurisdiction, is to coöperate with the State regulations, gentlemen may vote for striking out this clause, without parting with their favorite doctrine.

"Mr. Dayton, of New Jersey, trusted the motion would not prevail. It was negatived, there being only 23 votes in favor of it.

"Mr. Livingston, of New York, then moved to amend the bill by striking out the second line of the third section with the words 'and with approbation,' which was certainly surplusage. Agreed to.

"Mr. Waln, of Pennsylvania, said if it were proper to cede the land on which the warehouses are built, he did not think it would be to cede the sites of wharves to the United States. He did not think it right, for instance, to cede the jurisdiction of any wharves which might be built in the vicinity of this city to the United States. He, therefore, moved to strike out the words 'and wharves.'

"Mr. Sewall, of Massachusetts, hoped the gentleman from Pennsylvania would not insist upon this motion. No wharves would be erected where wharves now are; and if the United States are at the expense of erecting the wharves, they ought to have the jurisdiction of their sites, as well as of the sites of warehouses.

"This motion was negatived, there being only 12 votes for it.

"The committee rose and reported the bill, when Mr. Harper renewed the motion for striking out the proviso in the third section, for the reasons he urged in support of the former motion, and because this cession would be of no use to the United States; and after some few observations upon it, the motion was carried, 40 to 31.

"On motion of Mr. Sewall, of Massachusetts, the following section was added, repealing a law of the first session of the Fourth Congress, respecting quarantine:

"SEC. 5. *And be it further enacted*, That the act entitled 'An act relative to quarantine,' passed in the first session of the Fourth Congress of the United States shall be, and the same is hereby, repealed.'"

January 29, 1799, the bill was read a third time and passed.

In the Senate an additional section was added, as follows:

"SEC. . *And be it further enacted*, That whenever in the opinion of the Chief Justice, or in case of his death or inability, of the senior associate justice of the United States, a contagious sickness shall render it hazardous to hold the next stated session of the said court at the seat of government, it shall be lawful for the Chief or such associate justice to issue his order to the marshal of the district within which the Supreme Court is by law to be holden, directing him to adjourn the said session of the said Court to such other place within the same or an adjoining district, as he may deem convenient; and the said marshal shall thereupon adjourn the said Court by making publication thereof in one or more public papers printed at the place by law appointed for holding the same, from the time he shall receive such order, until the time by law prescribed for commencing the said session. And the district judges shall respectively, under the same circumstances, have the same power, by the same means, to direct adjournment of the district and circuit courts within their several districts, to some convenient place within the same, respectively."

This amendment was concurred in by the House, and the bill, as amended, was passed.

It was approved February 25, 1799.

In 1799–1800 there was much alarm in Europe in regard to the spread of the plague, and stringent quarantine measures were adopted by the British Government. There was some apprehension that the pestilence would be imported into this country, and Congress was urged to consider the question. On Friday, February 28, 1800, Mr. Waln, of Pennsylvania, presented a memorial from the health office in Philadelphia, stating that in consequence of the plague having raged in Morocco, Great Britain had

enacted very strict quarantine laws, but although the port of Philadelphia might be watched by all the vigilance in the power of the health office, there was no general law to keep that most dreadful scourge of the human race from being introduced into some ports of the United States. They prayed the attention of Congress thereto. Referred to the Committee of Commerce.

Wednesday, March 19, 1800, a memorial of the select and common councils of the city of Philadelphia was presented to the House and read, praying that Congress may take such precautionary measures to prevent the introduction of the plague, which has for some time prevailed in the countries bordering on the Mediterranean, as to their wisdom shall seem meet. Referred to the Committee on Commerce and Manufactures.

Friday, April 25, 1800, the Speaker laid before the House a letter from the Secretary of the Treasury, accompanying an estimate for an appropriation of moneys for carrying into effect the act respecting quarantine and health laws, which were read and ordered to lie on the table. No other action was taken, nor was the subject alluded to for upwards of two years.

On Friday, January 8, 1802, Dr. Samuel L. Mitchell, of New York, now for the first time a member of the House of Representatives, offered the following resolution:

"*Resolved*, That a committee be appointed to inquire and report whether any, and what, alterations are necessary to be made in the 'act respecting quarantine and health laws.'"

It was ordered that Mr. Mitchell, of New York; Mr. Eustis, of Massachusetts; Mr. Leib, of Pennsylvania; Mr. Archer, of Maryland; Mr. Lowndes, of South Carolina, be appointed a committee pursuant to the said resolution.

Dr. Mitchell was an active participant in the medical controversies in regard to the origin of yellow fever in New York. He was a strong advocate of non-contagion, and believed that pestilential diseases were frequently engendered on board of filthy ships. He did not, therefore, believe in quarantines for detention simply, but only for purification of ships. He was also an ardent believer in the efficacy of alkalies as an antidote to septic poisons, and hence advocated alkalies, vigorously applied, instead of fumigation.

In a letter to Dr. Richard Bayley, the health officer of New York, dated July 1, 1801, he concludes a history of quarantines with the following statement of his views:

"Vessels retain the pestilential because, 1, from their structure it is difficult to introduce a sufficiency of fresh air to waft away the infectious gas; 2, from the manner of their construction it is also exceedingly difficult to scrub and scour and cleanse them by lime and alkalies, as houses are purified; and 3, from the preposterous custom of pronouncing a vessel clean after she has been pumped out and fumigated with tar and brimstone; while in fact, she is as foul *after* being smoked as she was *before*. The negligence of navigators and owners of vessels on these points renders it absolutely necessary for public authority to interfere. All that I think necessary in the business is that the never-failing method of *house-cleaning* should be applied to *ship-cleaning* in the way that you have adopted with such happy success. And if the time shall arrive when sea-vessels shall be kept as clean as genteel habitations on shore, their crews and passengers will suffer as little by infection and pestilence; and then the dream of importing pestilential diseases from foreign countries will be forgotten or insisted on no more as a reality. And that this is not a mere conjecture but a practical fact, is confirmed by the experience of the Dutch navigators; for they, carrying with them to sea the habits of that precise and unequaled cleanliness which prevails on shore in the United Netherlands, are rarely or never troubled with the fevers, the plagues and the infectious distempers which incessantly harass the nastier nations of the earth."

The special object which Dr. Mitchell had in view in offering the above resolution seems to have been to give publicity to his opinions in regard to the virtues of alkalies as an antidote to septon (septic poisons). He says:

"The particular object aimed at is to cleanse ships and vessels by means of *alkaline salts and lyes*, and to explode the miserable and delusive practice of fumigation; in short, to apply the modes of *cleaning houses to the purification of ships*. This will reduce the quarantine of vessels *to the simple process of cleansing by alkalies*, and eventually remove from commerce most of the tedious and burdensome restraints under which it is now groaning. Science will have a glorious triump, and the American Government will set a noble and liberal example to the whole civilized world."

On Tuesday, March 9, 1802, the following petition was referred to that committee:

"A petition of sundry merchants residing in the city and State of New York, importers of cotton, hides, and other raw materials, for manufacture, was presented to the House and read, stating that the inconveniences and expense to which the petitioners are subjected by being obliged, under the quarantine laws of the said State, to unload and deposit for a limited time in every year, the said articles on Staten Island, and praying that they may be permitted to keep the same in the public storehouse of the United States erected on the island aforesaid, free from storage, during the period of such quarantine."

"*Ordered*, That the said petition be referred to the committee appointed on the 8th of January."

The committee made no report at that session.

At the following session it appears that on the 15th of February, 1803, the House referred to that committee the following resolution:

"That provision ought to be made by law for the regulation of quarantine within the District of Columbia." Finally, on the 25th of February, 1803, Dr. Mitchell submitted his report, which is remarkable for its intelligent recognition of the unhealthfulness of ships, and the better methods of purification. The report is as follows:

The term "quarantine" has been used, in the commercial world, to denote the detention of ship or vessel at a convenient place, some distance from port, for the space of forty days, for the purpose of freeing her from contagion and infection, supposed to have been transported in her from foreign places; latterly it means any shorter number of days. Under the persuasion that their own cities and habitations were exempt from such contagion and infection, and that these destructive agents were always introduced from remote places, less salubrious than their own, mankind have taken great pains to protect themselves from external attacks of the distempers which they believed to be prevalent among their neighbors or strangers. By the presumption that contagion was frequent in many foreign settlements, and was readily transported from country to country by commercial communications, have the nations of the earth been influenced in framing the rules and the means of restraint imposed upon their mutual intercourse. They have often looked on each other as lazars or lepers, and treated visitors and passengers at certain seasons as such.

The importance of the subject, as well to the commerce and revenue of the United States as to the happiness and security of her citizens, has induced your committee to look into it carefully. They have endeavored to gather facts and to deduce therefrom correct conclusions; and, upon the most complete investigation which they have been able to give the subject, they are decidedly of the opinion that the ideas generally entertained concerning quarantines are very erroneous.

It is true that certain diseases which afflict mankind, such as small-pox, for example, may be transferred from one person to another; but of late doubts have been entertained in the minds of some of the best observers, of such as have had great opportunities for knowing and judging, whether

the like contagiousness is true of yellow fever and the fever infecting ships.

Sickness of distant places and the danger arising from any intercourse with them is one of the trite themes of remark almost everywhere. At the same time few people can be brought to acknowledge the noxiousness of the soil and atmosphere of the place of their permanent residence. Therefore the inhabitants of the West India Islands are positive that they import yellow fever from Boston, New York, Philadelphia, and Baltimore; while the inhabitants of those cities, respectively, have been quite as decided in their conviction that the same distemper is brought to them from Cape Francois, Kingston, Havana, and Demerara. Both sides are equally positive and both about equally wrong. During the 700 or 800 years since the days of the crusades these erroneous sentiments have been indulged in Christendom. Great embarrassments have been experienced from them; and at this day they seem to be increasing. It is an object worthy the attention of the national legislature, to correct within these States this growing evil.

It is apparent to your committee that most, if not all, the infectious diseases which at times afflict the crews of sea vessels arise *not* from the ports or countries they have visited but from causes which exist *within* the *vessel*. Human beings inhabiting such crowded situations engender and communicate diseases which increase in frequency and malignity by sloth and uncleanliness. Now a ship is a human habitation, and sometimes the crew is very numerous, and usually prone to grow unclean. Frequently this uncleanness accumulates to a disgusting degree and turns to poison. The poison stirs up pestilence. Arrivals from Europe have given recent and woful proofs of this.

But a ship is not merely a human dwelling; she is also a magazine or storehouse. Within her sides, as in a common receptacle, are collected many sorts of things prone to perish and corrupt.

Beef, fish, pork, hides, and other animal substances frequently taint the hold that contains them with their deleterious vapors. This tendency to putrefy is often increased by the scanty quantity and weak quality of the Liverpool salt with which they are put up. Their provision spoiling during the West India voyages, and rotting on shipboard (which is a well-known case in hot climates), render the berths and quarters of the men unhealthy, the crew sickens from the operations of such mischievous agents, and some of them are soon destroyed. The evil is increased when they are obliged to feed on such tainted or spoiled meat as a part of a daily ration. Not only animal substances, but onions, coffee, Indian corn, and various other vegetables, which are transported from country to country, contribute, by their occasional decay, to render unhealthy the bottoms in which they are carried. From these causes it is well known that provisions carried between our ports and the southern islands degenerate, and frequently the vessels conveying them are found in a very filthy and unclean condition. From the corruption of their cargoes and the uncleanness of the crews, ships may be filled with a venomous atmosphere, and the timbers, planks, bedding, etc., be charged or impregnated with the inbred mischief. Many ships belonging to the United States afford instructive examples of fevers caused on board by the exhalations from putrid provisions on their outward-bound voyages. A corrupting barrel of beef has done great injury within a vessel sailing from Great Britain to the United States.

It is a remarkable fact that ships and vessels, though so prone to become foul and pestilential, are seldom cleansed in so complete a manner as they ought to be. From the time that they are launched to the day of their condemnation few or none of them are perfectly purified. Year after year this foulness increases, insomuch that old ships and vessels are usually the most nasty and loathsome of human habitations.

Ships being thus, from their structure, tenants, and cargoes, peculiarly liable to accumulate poison, and being rarely or never cleared out, as they ought to be, carry that infectious matter engendered within them to all parts of the world, and by a curious and unhappy mistake the pestilence produced in one of these floating mansions has been almost always referred to the place from which she last came, though that place commonly has not had any kind of agency in the matter.

Hence, it will appear to every reflecting mind that the common mode of quarantine by detaining a foul ship at anchor will rather increase than remedy the evil intended to be guarded against. Bills of health are nugatory or deceitful; for if a clean ship sails from a sickly place a foul bill of health will not really indicate an unfavorable state of health on board, nor prove the crew to be affected with the distemper that prevails in the port she left; nor will a clean bill that the people in a pestilential vessel are in good health or that she is in a safe or fitting condition to be admitted to port. Consequently, bills of health are either useless or worse than nothing. With the Dutch, who are remarkable for clean ships, and who carry the system of purification on board their vessels to a greater extent than any other nation of Europe, quarantine is a mere form only. Pestilence can neither be bred nor continued on board the vessels of the Hollanders.

Instead of the rigorous rules of quarantine adopted in the United States, your committee are of the opinion the mischiefs intended to be guarded against thereby might be more effectually prevented by less injurious means. It is remarkable how little pains are taken to accomplish the complete and healthy purification of ships. None of the regulations which have hitherto been made direct the method of performing it or insist upon it with sufficient energy. A ship cannot be deemed wholesome or fit for a voyage merely because the hold and windows have been opened after she is unloaded, her decks washed and scraped, and the bilge-water pumped out. Nor will the smoking her out with brimstone, tar, or nitrous and muriatic vapors render her a suitable habitation to preserve the health and lives of men. As well might it be pretended that infected rooms, beds, and clothes could be purified by merely letting in the air and setting fumigating mixtures into action; when all domestic experience teaches that soap, lye, and lime are the only sure and efficacious auxiliaries in all cases of difficulty and danger.

It is a lamentable fact that, under the present quarantine regulations, in most places so little regard is paid to cleaning a fœtid and infectious ship, provided she does not transgress the rules *of the port where she happens to be*, by proceeding beyond her prescribed limits. She may, nevertheless, weigh anchor and go, in her foul condition, to *any other port or city* without the least impediment. By this miserable practice is the poison of plague, pestilence, or yellow fever produced, continued, and multiplied, by natural and necessary process on shipboard, and carried to all the places she visits; and while this dreadful custom prevails, there will not probably be an end of the rumors of imported contagion, and all the consequent terror and stagnation of business at home and of detention of ships and expense of quarantine abroad. The recent accounts of the severe quarantine of a hundred days and more imposed upon American vessels in some of the principal ports of Spain, must fill every friend of our country with regret. It amounts to an almost total prohibition of our trade with those cities, and is viewed by your committee as countenanced by false alarms and unfounded suggestions prevalent among our own citizens. In order to prevent these commercial restraints, in some degree, it is necessary to form our health laws upon more scientific principles, and to regulate our marine and naval intercourse upon maxims more accordant with the means to preserve domestic neatness and household purity on shore.

Considering the great influence of names over human thought and action, and the high importance of a correct nomenclature for legal and scientific purposes, it were to be wished that the term quarantine should be erased from the statute-books of the Union and of each particular State. Instead of ordering a vessel *to perform a quarantine*, she ought *simply to be directed to be made clean*. Such foul and infectious vessels, with sickly crews, should be prevented from coming to our cities or proceeding on any voyage in that situation. Nor is the matter so difficult of execution as many have imagined. When a vessel arrives from any foreign port, let her come to at some convenient place. If any are sick on board, let them be landed and all uncleanness put away. If she has any spoiled or putrefied provisions or merchandise on board, let them also be taken out. Then cause her to be scoured and cleaned in every part with pure water, soap, sand, alkaline, lye, lime, and other sweetening and purifying substances; after which the admission of a plenty of clean and good air will complete the work. These are the methods we use with success to cleanse our habitations on the land. They are equally applicable to habitations on the water, and it is necessary to scour the latter as frequently and as thoroughly as the former. But as individuals who own and navigate vessels are too careless or forgetful to cause them to be frequently and efficaciously cleansed, there is a necessity for public authority to inter-

fere. This interference should be exerted to purtefy every foul and pestilential vessel that enters a port, and not keep her idly and injuriously riding at anchor. Quarantines may thus be shortened from forty days to *forty hours. Indeed, they would be nothing more than a thorough ship-cleaning.*

When the civilized world shall, with one accord, enforce the regular and exact purification of ships, there will be nothing on board to turn to pestilential or any other fever-producing agent, and all the inquiry necessary, when a vessel arrives, will be whether she is clean or dirty. As the latter is almost always the fact, she should be cleansed by public authority, and never suffered to go to sea, no more than enter a port, in a foul internal condition. There would then be no vessels afloat carrying infection with them from place to place, and the tales about contagion from foreign ports would gradually die away and cease to agitate society, as they now do, to the great detriment of our trade, and disgrace of commerce, medicine, and police.

After taking this comprehensive view of the subject, it would have been pleasing to the committee to have proposed something more in detail for the treatment of vessels arriving at the port of Alexandria, conformably to these principles, but the advanced period of the session prevents their offering more at this time to the House. They content themselves, therefore, for the present, with calling attention to this important subject and presenting for adoption, as a temporary expedient, a bill for extending the quarantine laws of Virginia to the territory of Columbia.

Yellow fever prevailed in the principal commercial centers during the years 1802, 1803, 1804 and 1805, but not with the fatality that it exhibited in 1798. During this period the discussion in regard to the importation and contagiousness of the fever was very exciting, and was participated in by the leading physicians of the time. Dr. Benjamin Rush, of Philadelphia, led the advocates of the local origin and non-contagiousness of the fever, and Dr. David Hosack, of New York, headed the opposition. The former class had the larger number of followers and exerted the greatest popular influence. The opinion became very general that yellow fever depended upon local filth, and that it was not propagated by any infectious or contagious properties. In the light of these opinions, quarantine rules and regulations were not only useless, but were unjustifiable restraints upon commerce and travel. Dr. Rush said of quarantines: "They originated in error; millions of money have been wasted by them; thousand of lives have been sacrificed by them." Potter, an equally zealous opponent of quarantines, asserted that he "anticipated the era when our government would make it a national concern; when a consular convention at least with the nations commercially connected with us, will put a period to a system which is a reflection upon our philosophical character."

Dr. Hosack, on the contrary, not only strongly advocated quarantines, but took high ground in favor of placing them under the management of the general government.

The opinions of Rush found a supporter in Mr. Jefferson, as appears from the following card written in 1807 and his annual message of 1805. The card is dated at Monticello, September 8, 1807, and was written to Mr. Crawford. It is as follows:

"Thomas Jefferson presents his compliments to Mr. Crawford, and his thanks for his Observations on Quarantines, which he has read with great pleasure. Not himself a friend to quarantines, nor having confidence in their efficacy, even if they are necessary, he sees with pleasure every effort to lessen their credit. But the theory which derives all infection and ascribes to unseen animals the effects hitherto believed to be produced by it, is, as yet, too new and unreceived to justify the public servants in resting thereon the public health, until time and further investigation shall have sanctioned it by a more general confidence."

In his annual message dated December 2, 1805, President Jefferson says:

"In taking a view of the state of our country, we, in the first place, notice the late affliction of two of our cities under the fatal fever which, in latter times, has occasionally visited our shores. Providence, in his goodness, gave it an early termination on this occasion, and lessened the number of its victims which have usually fallen before it. In the course of the several visitations of this disease, it has appeared that it is strictly local, incident to cities and on the tide-waters only, incommunicable in the country either by persons under the disease or by goods carried from diseased places; that its access is with the autumn and it disappears with the early frosts. These restrictions within narrow limits of time and space give security even to our maritime cities during three-fourths of the year, and to the country always. Although from these facts it appears unnecessary, yet, to satisfy the fear of foreign nations, and cautions on their part, not to be complained of in a danger whose limits are unknown to them, I have strictly enjoined on the officers at the head of the customs to certify with exact truth for every vessel sailing for a foreign port the state of health respecting this fever which prevails at the place from which she sails. Under every motive from character and duty to certify the truth, I have no doubt they have faithfully executed this injunction. Much real injury has, however, been sustained from a propensity to identify with this endemic, and to call by the same name fevers of very different kind, and which have been known at all times and in all countries, and never have been placed among those deemed contagious. As we advance in our knowledge of this disease, as facts develop the sources from which individuals receive it, the State authorities charged with the care of the public health, and Congress with that of the general commerce, will become able to regulate with effect their respective functions in those departments. The burdens of quarantine are felt at home as well as abroad; their efficacy merits examination. Although the health laws of the States should be found to need no present revisal by Congress, yet, commerce claims that their attention be ever awake to them".

After this period the danger from yellow fever epidemics became less and less threatening, and the National legislature was seldom appealed to for aid in its prevention, during the early part of the century.

PURULENT BRAIN DEPOSITS, AND PHLEBITIS AND THROMBOSIS OF THE CEREBRAL VEINS AND SINUSES FOLLOWING EAR DISEASE.

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A few years ago, when the mastoid process was first opened for the liberation of pus contained within its walls, it was regarded as an extremely hazardous procedure, necessitating the highest skill, and unwarrantable except as a *dernier resort.*

As the anatomical and pathological bearings of the disease become better understood, the operation assumed a less formidable appearance, and the process is now opened sufficiently early to save most cases of this nature.

Intra-cranial lesions following aural affections have a somewhat similar history, but our knowledge and plans of procedure are still in a primitive condition, and not sufficiently crystallized to warrant a sense of security, when radical and positive steps appear to be indicated.

With the hope of somewhat systematizing our present knowledge of this subject, I have been to the pains of collecting the data of 169 cases bearing on the topic, and no case has been admitted to this series unless one of two circumstances has been fulfilled:

1. The patient must have had an ear difficulty,

resulting in intra-cranial trouble, death, and an autopsy; or,

2. The patient must have had an ear difficulty, resulting in intra-cranial trouble, and the intra-cranial cavity been exposed by operation.

By carefully systematizing these cases, I think a fairly comprehensive idea of the subject may be obtained.

Case 1.—Treated by Frank Allport, of Minneapolis, Minn. Mrs. C. W., aged twenty-five. At three years of age she had scarlet fever, resulting in acute purulent otitis on the left side, which subsequently became chronic. The suppuration continued up to her death. Years ago she suffered an acute exacerbation with a mastoid pain, relieved by counter-irritation over the mastoid. Since then she has had occasional ear-aches, but nothing decisive in its character until January 28, 1883. A few days previously she contracted a severe cold, centering in her ear, and accompanied by intense ear-ache.

I found a meatus almost imperforate from bony hypertrophy. Consequently, only the extreme outer portion of the canal was visible; therefore, the middle ear could be neither seen nor treated. The discharge was offensive, and evidently largely retained, owing to the hypertrophy of the meatus. There was no pain, redness or swelling of the mastoid. Pulse and temperature slightly advanced.

Rest, quiet and hot water douching were employed.

Feb. 2. The pain being worse and the meatus inflamed, the tissues lining the meatus were freely incised down to the bone. Improvement followed.

Feb. 10. The pain had been increasing, and was now excessive. It extended from the ear to the temporal and parietal regions, but did not involve the mastoid.

Feb. 13. Drs. Spring and Fulton were called in consultation. It was decided to open the mastoid. This was done Feb. 14, and large quantities of very fetid pus evacuated.

Great improvement followed. The discharge from the ear was much diminished.

Feb. 16. The pain in her head returned, and was referred principally to the frontal and parietel regions.

Feb. 22. She had a chill, during which, a sudden and free gush of pus occurred from the mastoid opening, after which she grew rapidly better.

Feb. 27. The pain recurred, and continued until March 1, when it subsided upon another free and sudden gush of pus from the mastoid opening.

March 7, the same phenomenon recurred; March 14, the severe pain returned; March 16, Drs. Spring, Fulton and myself met in consultation, and decided to enlarge and lower the mastoid opening, fearing the drainage was insufficient.

This was done March 17. In the course of the operation, a sinus was discovered within the boundaries of the mastoid opening, leading into the cerebellum. The sinus was about one-fourth of an inch wide.

March 20. Drs. Spring, Fulton, Abbott, Johnson and myself met in consultation.

March 23. Severe pain in the frontal and parietal regions appeared. In the evening she had a chill.

March 24. Some delirium. The same physicians were called in consultation. The blunt canula of an aspirating syringe was inserted into the sinus and into the cranial cavity. No pus was found. Pain, restlessness and nervousness now continued until the termination of the case.

March 28. In pressing upon the temple, it was noticed that pus was forced into the mastoid opening. A sinus was found extending over the squamous portion of the temporal bone, and terminating in the region of the zygomatic arch. The sinus was kept drained with a tube, and washed with peroxide of hydrogen.

April 2. A peaceful death.

Her pulse and temperature were never very high. Her pulse ranged from 80 to 108, and her temperature from 98½° to 103½°. It did not often exceed 101°.

Autopsy.—Drs. Spring, Fulton, Abbott, Johnson, Hill, Wells and myself being present. Extensive necrosis was found outside of the skull, extending from the outer surface of the mastoid to the squamous portion of the temporal bone, extending over the frontal bone and to the superior maxilla down below the zygomatic arch. The soft parts were separated from the bone over this entire area, and considerable quantities of pus followed the diseased tract.

We found that the sinus we had discovered in the course of the operation did, in fact, open into the cerebellum through the inner mastoid plate, but no pus had accumulated at this region.

The outer portion of the squamous portion of the temporal bone was almost entirely destroyed by necrosis. No fluctuation, redness or swelling indicated this before death. A large opening existed in the squamous bone, connecting directly with the cranial cavity. The external diffused abscess at this point extended from the entire squamous portion of the temporal bone down to below the zygoma, and as far forward as two inches in front of the ear. Extending over this territory, the soft parts were completely lifted from the bones, which were generally blackened from necrosis.

The inner surface of the temporal bone was badly necrosed, especially at four points—1, the squamous portion; 2, the upper part of the petrous portion; 3, the petrous portion corresponding to the middle and internal ears; and 4, the inner plate of the mastoid. The petrous bone was so softened in many places as to be easily scraped up like so much wet sand. A large, carious opening connected the middle and internal ears and the cranial cavity. An opening existed through the mastoid, just in front of the lateral sinus.

There was a general injection of the entire brain tissue, especially in the tempero-sphenoidal lobe. The left side of the brain was much flattened, and the resulting space filled up with pus.

Pus deposits were also found in the first frontal fissure, in the first frontal convolution, in the fissure of Rolando, in the middle lobe on the right side, and in both lateral ventricles.

There were enormous pus deposits in the region of the medulla and pons.

The cerebellum was much softened by purulent infiltration, and pus was found in its interior.

The patient's mental functions were practically unimpaired up to the time of her death.

Case 2.—Treated by Frank Allport, of Minneapolis, Minn. N. N., male, age twenty-three. Right ear. Acute purulent inflammation of the middle ear.

Was brought to the City Hospital September 16,

1889. Dr. Chase requested me to see him. There was pain in the ear and side of the head. Tenderness over the mastoid, but no swelling. Clouded intelligence. Pulse 64; temperature 103⅗. Calomel and morphia were administered, and the ear frequently douched with hot water.

Sept. 17. The mastoid cells were opened, but no pus was found. The cells, however, were much softened and broken down, and a probe could be passed through the inner plate of the mastoid into the cranial cavity. This was enlarged, but no pus was found.

It was determined to trephine the skull at another point, as it was evident that pus existed somewhere in the cranial cavity, owing to the profound cerebral symptoms, the carious opening through the inner mastoid plate, and the lack of pus in the mastoid cells. The directions of Barr were followed, and the opening made through the squamous portion of the temporal bone, just above the auricle. No pus was found. Another was then made back of the auricle, and involving both the mastoid and occipital bone. A small amount of pus was here found. The wounds were irrigated and dressed antiseptically. He died that evening. His pulse was always slow, and his temperature never extended above 103⅗°, and the morning of the operation it was subnormal. No evidence of any paralysis was observed in the case.

Autopsy.—This was made by Prof. W. A. Jones, Dr. Chase and myself. The dura-mater was adherent. There was a blood clot in the longitudinal sinus, and over the Sylvian fissure. Clotted blood extended over the parietal lobe backward to the occipital lobe. A large blood clot envelopes the temporal and sphenoidal lobes. A clot is found in the superior petrosal sinus, and in the right ventricle.

The right hemisphere is deeply congested; the left hemisphere slightly congested.

The medulla was bathed in pus. Abscess, and purulent meningitis of cerebellum.

There are carious openings through the petrous portion of the temporal bone connecting the cranial cavity with the middle and internal ears. A carious opening is found extending through the internal mastoid plate.

Case 3.—Treated by Frank Allport, of Minneapolis, Minn. F. J., male, age twenty-two. City Hospital case. Last June he had a fever, followed by an abscess of the right middle ear.

He came to my clinic at the University Dispensary, October 2, 1888, with a large mastoid swelling. This was opened and pus evacuated. I found a spontaneous opening through the external mastoid plate, which was enlarged. Pus was located in the cells. His pulse and temperature was somewhat heightened.

He went on to an uninterrupted recovery. January 25 he returned to the hospital with typhoid fever, and was treated by Prof. Dunn, the city physician. He died.

Autopsy by Prof. Jones, Prof. Dunn and myself. We found a venous congestion of the meninges. A thrombus was found in the posterior portion of the longitudinal sinus. Another thrombus was found in the lateral sinus. The dura-mater over the internal plate of the mastoid was much thickened and bound down by adhesions. The inner plate of the mastoid was thickened, darkened, porous and hard. The walls of the mastoid cells were hypertrophied. The cells were few in number.

The opening made in external plate was refilled with bony cicatricial tissue. The abdominal examination showed death by typhoid fever.

Case 4.—Treated by Frank Allport, of Minneapolis, Minn. J. M., male, age thirty-four. I was called to see him April 30, 1889, by Drs. Sweetzer and Hall.

I found him with a discharge from the right ear, with an accompanying acute inflammation. He has had chronic otorrhœa for a long time. He had pyæmic abscesses in various parts of his body. Temperature from 102 to 105; pulse averages about 140°. Is having chills. Has no paralytic symptoms. Has great pain in his head, but this disappeared several days before death. Mentality good, but is very nervous and excitable. Became unconscious just before death, but not before. He had no mastoid symptoms. He died May 2.

Autopsy by Drs. Sweetzer, Hall and myself. The mastoid was unaffected. The middle ear was carious, and the ossicles had all disappeared. There was no carious connection between the mastoid, middle or internal ears, and the cranial cavity. We found a thrombus in the superior petrosal sinus, pus in the superior petrosal and lateral sinuses, necrosis in the lateral sinus and general meningitis

Case 5.—Treated by Frank Allport, of Minneapolis, Minn. J. F., male, age twenty-five. Was struck in the right ear while boxing. Came to the City Hospital Nov. 29. An examination of the ear, at the request of Dr. Dunn, disclosed some inspissated cerumen, which was removed. The drum-head was much inflamed and swollen. Hearing good. Drum-head lanced and pus evacuated. The hot douche was frequently used, and the patient kept in bed. He improved.

In about one week, after considerable pain in the ear and mastoid, a swelling appeared over the mastoid, accompanied by tenderness and some pain in the temporal and parietal regions. The discharge continued.

Dec. 10. The mastoid cells were opened, and pus liberated. Improvement followed until January 11, when the pain in the right side of the head reappeared, accompanied by slight pain and swelling in the neck, extending down from the mastoid process. These neck symptoms entirely disappeared in a few days. The bowels were loose.

Jan. 15. The mastoid opening was enlarged and improvement followed.

Jan. 29. Pain in the right side of the head again. Vomiting and delirium. Improvement until Feb. 10, when the pain reappeared. Delirium; coma and death.

He never had any paralytic symptoms. The temperature and pulse were never high, and the temperature was often sub-normal.

Autopsy by Prof. Hendricks Prof. Dunn and myself. There was a diffuse sub-dural abscess, most marked in the anterior parietal region anterior to the fissure of Rolando. A purulent thrombus existed in the superior longitudinal sinus. Firm adhesion existed between the arachnoid and pia-mater. There was pus on the surface of the right frontal convolution and the right temporal convolution. A small thrombus existed in the lateral sinus. There was a carious opening from the mastoid cells into the lateral sinus. The petrous bone was unaffected, with the exception of the purulent inflammation of the middle ear.

(To be continued.)

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SATURDAY, OCTOBER 15, 1892.

THE PRESENT STATUS OF THE TREATMENT OF CONGENITAL CLUB-FOOT.

Nineteen papers on club-foot, followed by an extended discussion, chiefly occupied the American Orthopedic Association at its recent meeting in New York. We will attempt to summarize these deliberations.

In congenital club-foot there is a shortening of all tissues, bony, ligamentous, muscular, tendinous, fibrous and cutaneous, on the side to which the deformity looks. In certain cases the deformity can be corrected without resort to a cutting operation; in others not. In the child with growing bones, if the foot can be continuously maintained in the corrected position for a sufficiently long time, the bony and soft parts adapt themselves to the changed position and a permanent cure may result, but in the older foot, even if the deformity can be corrected by non-operative means, a perfect and permanent result may not be anticipated unless a bone operation be made which will restore the articular surfaces to their normal outlook. The milder measures are always to be resorted to in the treatment before resorting to the more severe ones, unless the age of the patient and the severity of the deformity render the milder measures obviously useless.

The treatment is divided into two stages: 1, the corrective; and 2, the retentive. Correction of the deformity is accomplished by frequently repeated or continuous stretching, or at once by *brisement forcé*, or by a cutting operation, or by both. Retentive appliances completely immobilize, or permit of motion in the directions the opposite of the late deformity. Treatment should be commenced at the earliest possible moment. In young children the hand of the operator is the most convenient means for frequently repeated stretchings, and in some cases is sufficient for immediate forcible correction of the deformity. Various mechanical devices are also employed for stretching the foot into shape, most of them being modifications of SCARPA'S shoe, and acting both as stretching and retentive appliances. A more forcible instrument is found in the THOMAS wrench, used to stretch the foot past the point of resiliency, when it can be readily retained in a simple brace. Still more forcible means are found in the devices of MORTON, BRADFORD and PHELPS, but these are used almost exclusively in connection with some cutting operation. The simpler operations are the subcutaneous divisions of the tendons, of the fasciæ and of the ligaments. When the subcutaneous division of all possible of the shortened tissues and the forcible use of the wrench fails, all the soft parts on the concave side should be divided by an open operation, and the wrench or machine again applied to stretch or crush the foot into shape. Failing in this an incision is made at the outer side of the foot, and a linear or a cuneiform osteotomy is made just posterior to the anterior articular surface of the os calcis, and if necessary also of the neck of the astragalus, and again the machine is used to forcibly correct the deformity. In a few cases it will be necessary to excise the astragalus, but this will only be required when the bone is displaced far forward and the tibia articulates with the os calcis. Treatment should be carried persistently forward until a perfect and permanent cure has been attained. The guide for perfect correction of the deformity is found in the median line of the sole. In the varus foot, the median line of the sole of the anterior portion of the foot meets the median line of the sole of the heel to form an angle; in the normal foot they meet to form a straight line. The certainty of a permanent result can only be told by a knowledge that the articular surfaces look in the normal direction, or from the results of use freed from retentive apparatus. In a word, treatment is commenced as early as possible by the employment of simpler methods and milder means, and is carried on step by step in accordance with the indications until a real cure, a restoration to normal contour and perfect function, has been attained.

A NATIONAL QUARANTINE LAW.

The series of papers which have appeared in THE JOURNAL reviewing the history of the quarantine in Congress in the first years of the republic, have a special importance at this time. We are doubtless on the eve of a renewal of the agitation in favor of a more rational and effective quarantine system for this country, and the proposition to create a national quarantine will be more earnestly advocated than at any former period. In this view the first discussion of the subject in Congress will prove interesting and profitable. The fact that there was so decided a movement in the first sessions of Congress to call

upon the general government to aid in preventing the introduction and spread of contagious diseases, is in itself of importance. It proves that there was at the organization of the government a party which maintained that its powers extended to the control of the quarantine of all vessels from foreign ports or places, and "to direct at what place or station," and "for what duration and particular periods of time," such vessels should perform quarantine.

The discussions which followed the introduction of the bill to empower the President to direct quarantine are interesting, as showing that the division of opinion, as to the powers of the general government and the rights of the States, was neither sectional nor partisan. The bill was introduced by a member from Maryland, and one of the most effective arguments in its favor was made by a member from South Carolina. He pertinently said, "Consider how epidemical diseases, imported, affect the United States at large; they do not merely affect the city where first imported, but they obstruct the commerce of all others." "It had been said that this subject could be better considered in each individual State than we could possibly settle it. Who are we? Are we a foreign government?" "If the subject was vested in the general government it was their business to protect the health of their fellow citizens as much as their property; because if the performance of quarantine was neglected such neglect naturally tended to affect the lives as well as the revenues and commerce of the citizens throughout the United States. He, therefore, thought it a subject perfectly within the Federal jurisdiction." The most strenuous opposition to the bill came from a member from Massachusetts, who vigorously maintained the "State rights" doctrine. It is not a little surprising, considering the intense feeling that at this early period existed against Federal encroachments upon State powers and rights, that on the final vote one-third of the members were recorded in favor of a national quarantine.

The frequent outbreaks of yellow fever in succeeding years, owing to our active commerce with the West Indies, occasionally renewed the agitation of quarantine in Congress. The most notable incident in this agitation was the report of DR. SAMUEL L. MITCHELL, a member from New York City, in 1803. This report we have printed at length as, perhaps, the most remarkable contribution to the subject of the prevention of the spread of contagious diseases by ships, ever put on record. DR. MITCHELL was a man of vast erudition, of an inquisitive mind and of a controversial habit. He embraced in the range of his studies all of the natural sciences, but chemistry was his favorite field of inquiry. In investigating the origin of contagious diseases he came to attach great importance to the ferments, and from them evolved the septic agent which caused various diseases. This was his *septon*. In these speculations he was treading upon grounds made familiar to us, in these latter days, by LISTER and others. The great remedy for the septon of MITCHELL was potash in the form of soap or lye. Cleanliness by means of these agents was, in his opinion, a sure preventive against contagious and infectious diseases His comparison of an inhabited ship to an inhabited house is very happy, and his insistences that the former can and should be made and kept as clean as the latter, and by the same means, viz., scrubbing with soap and lye, is a lesson in ship sanitation which, if practically enforced, would, as he alleges, reduce the regulation quarantine time from forty days to forty hours.

Though the question of a national quarantine was scarcely revived in Congress until within the last few years, yet it is now likely to become one of the "burning questions" of the next session.

JACQUES INAUDI, A MODERN PRODIGY.

A shepherd lad, bearing the above name, has occupied a liberal share of the scientific attention of Paris during the past few months. He has been under investigation by the French Academy, by the Sorboune and at the Salpêtrière, the verdict being that he is one of the first calculators of the century. ALFRED BINET, in *Revue des Deux Mondes*, gives an interesting summary of examinations made by himself and DR. CHARCOT. Although spoken of as "the Piedmontese shepherd lad" INAUDI is now twenty-four years of age. He is short and stout and has a large cranium. The young man is intelligent, converses with spirit, plays games with skill, and is much more than a mere calculating machine. A protracted anthropometric examination by CHARCOT shows a few insignificant signs of degeneration.

INAUDI did not learn to read and write until he was twenty years old. Yet when only twelve he was a prodigy in calculating. He began to combine numbers as early as when he was six years old; while watching his sheep he worked out arithmetical problems by methods original to himself. In addition, he will add seven numbers of eight or ten figures each, beginning at the left. In subtraction, he deals readily with numbers containing twenty figures; here, also, he begins at the left. He can multiply two numbers composed of eight figures; or give the total number of seconds in any given number of years, months, days, and hours. He was, on one occasion, asked the number of seconds in 18 years, 7 months, 21 days, and 3 hours. The answer was ready in thirteen seconds. He obtains the sixth or seventh root of large numbers with astonishing rapidity. Although he has learned the ordinary methods of calculation, he is said not to use them.

CHARCOT caused him to perform, at the Salpêtrière, two equally difficult problems in division, one upon paper according to the usual method, the other in his head, after his own process; the former required thrice as long to perform as the latter. He can repeat a number containing thirty figures, orally given him, and retain it clearly in his memory for some time. On one occasion, he remembered a number containing 22 figures for a week, although he had no warning that he would be asked for it again. His memory is not remarkable in any other direction than in that for numbers. The playing of chess blindfold is to him a complete enigma. His memory for melody, form, place and color is rather inferior to the average.

Of the mental attitude of INAUDI toward his remarkable powers, it is interesting to note that audition and not vision, is the channel of his work. This is contrary to the experience of COLBURN, MONDEUX, and all former prodigies in numbers, who have been able to explain their methods. Visualization has been the rule in all other cases. The committee of the Acadèmie des Sciences, in their report, say "he calculates with greater ease when the problem is put to him by word of mouth than when placed before him in writing; the sight of figures embarrasses him, and reverting to the procedure natural to him, he repeats to himself, either aloud or in a low voice, the numbers that he wishes to remember."

BINET's inquiry concerning any influence of heredity in the production of INAUDI's remarkable gift returned to him unsatisfied. The young man's parentage was lowly, and his ancestors were not known to have had any marked peculiarities. No other relative has manifested any calculating ability; his brothers tried to learn from him, but without success. He had not had any derangement of health as a youth, and his growth was in every way like that of his fellow peasant lads. He was simply seized with a passion for reckoning, or for the exercise of his memorizing faculty. The Academic investigators acknowledged a negative result in the heredity branch of their inquiry.

The case of this young man seems to establish the perfectibility of human faculties many times beyond the normal, and as BINET says "this fact is especially important to us because it allows us to see the high degree of elevation the mind of man may yet attain."

THE MISSION HOSPITAL AT CANTON.

This institution was opened in 1839 by DR. PETER PARKER. It is now conducted by DR. J. G. KERR, assisted by DR. J. M. SWAN and MISS NILES, M.D. During 1891, the number of patients received was 1,269, while there were treated in the out patient department not less than 22,000 cases. There were 2,140 surgical operations performed. The wards are roomy and improvements are added yearly. About thirty natives have been trained in four year courses. Some of these continue at Canton and assist at the Canton Hospital or at the three dispensaries conducted by DR. MARY FULTON, at which several thousand women and children have received treatment. Others of the graduates have gone back to their former homes into the interior and even to the borders of riotous Hunan. Nearly all the high officials of Canton have from time to time had occasion to seek the advice of our American medical missionaries, and the latter have had large measure of success. On one occasion, not long ago, DR. KERR was invited to attend the Tartar General who was the military commandant of the city and district. After his recovery this official came with a large retinue to express his grateful appreciation to the physician. The pomp and circumstance of this visit was the means of producing a profound impression among the people—deeper perhaps than would have been made by successful services on a hundred persons of minor rank. The influence of the Hospital is extended to the island of Nodoa, DR. H. M. MCCANDLISS and an assistant, there being a small pioneer hospital at the town of Nodoa.

ELEVENTH INTERNATIONAL CONGRESS.

As a recent notice in this JOURNAL has informed our readers, the Eleventh International Congress will meet in Rome, Italy, from September 24 to October 1, 1893. By an official letter dated August 22, 1892, and signed by Prof. Guido Baccelli, President, and Prof. E. Maragliano, Secretary General, Dr. A. Jacobi, of New York, has been directed to form an American Subcommittee. Its membership is not yet complete, but on it are already found beside that of the Chairman, the names of Drs. Wm. Osler of Baltimore, S. C. Busey of Washington, N. S. Davis of Chicago, Charles A. L. Reed of Cincinnati, Wm. Pepper of Philadelphia, F. Peyre Porcher of Charleston, James Stewart of Montreal, and Alexander J. C. Skene of Brooklyn, N. Y. In the interest of facilitating the trip to Italy, and reducing the expense, arrangements will be made with the Steamship Companies. According to a communication from the Central Committee—contained in a letter of the Secretary General's dated September 14, the North German Lloyd proposes to reduce the fare to Genoa by twenty per cent., and that of the return trip by ten per cent. It is expected that still more favorable terms will be secured.

UNIVERSITY OF MONTREAL.—The chair of pathology in this institution has been offered to Dr. Adami, fellow of Jesus College, Cambridge University, and formerly of Owens College, Manchester. The University has a pathological laboratory ready for students and practitioners wishing to do special work in bacteriology and morbid anatomy.

THE ENGLISH DISEASE.—The natives of Damascus are said to have been obliged to find a new name for drunkenness, and inasmuch as a large proportion of its victims are foreigners or tourists, they have called it "the English disease."

A NEW ABORTIFACIENT.—At a recent coroner's inquest at Leicester, England, testimony was adduced to show that the deceased, a woman, had been in the habit of purchasing diachylon in the lump and eating it to produce abortion. The experiment was generally successful in her case, it was alleged, but she tried it once too often, and died from an overdose of lead.

DOMESTIC CORRESPONDENCE.

To the Editor of the JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION:

Please give publicity through your JOURNAL to a confidence game that is being worked on physicians in this State and probably in others. A "special agent" sailing under the name of F. C. Washburn, of St. Paul, Minn., goes from city to city appointing medical examiners for the Bankers' Mutual Aid Association of St. Paul, Minn. The examiner is naturally requested to take a policy for which he pays $5.00 quarterly dues in advance. No policy ever appears and the appointment is bogus. Yours very truly,

F. LOHRSTORFER, M.D.

Port Huron, Mich., Oct. 8, 1892.

NECROLOGY.

MR. WILLIAM D. HUSBAND, M.R.C.S., a former president of the British Medical Association, died at York, July 18, in his 76th year. He was for many years the treasurer of that Association, and seldom failed in a half century of membership to attend the meetings. He was the leading surgeon of the West Riding of Yorkshire, and was senior attendant to the County Hospital and the Retreat. He was Lord Mayor and Justice of the city. He had been lecturer on clinical surgery in the York School of Medicine.

DR. JOHN H. DOUGLAS, formerly of New York City, died in Washington, D. C., October 2, aged 68 years. He was a native of Waterford, N. Y., and graduated at the University of Pennsylvania in 1847. He was a resident of New York, during the greater part of his professional life, engaged in a specialty of diseases of the throat and lungs. He was General Grant's physician during the last painful illness of that eminent American. Dr. Douglas was unremitting in his services, and found it expedient, after the death of the General, to go to Mexico on a recruiting excursion. He went to Cuba and Florida also, but he seems not to have been benefited by the southern climatic influences. His health was still further broken about two years ago by a cerebral hæmorrhage, and a second stroke was experienced by him in Washington, about a fortnight ago. An unpleasant discrepancy, some of the discussion of which was worked over in the newspapers, arose between the survivors of the General and Dr. Douglas regarding the latter's fees. This was arranged, if not placated, by the payment of about $12,000 for services covering the greater part of ten months. Some of these services were exclusive, the class of all others concerning which there is the greatest room for disagreements and subsequent litigation. The last four years of Dr. Douglas' life were spent in retirement, chiefly in the vicinity of New York and in Washington. Without doubt under some forms of Government, having more of gratitude than Republics, Dr. Douglas would have been, in his latter days, in the receipt of a comfortable pension.

MISCELLANY.

WE hear the S. S. S. man of Atlanta has gone on a visit to Hot Springs, Arkansas, for his "rheumatism."—*Atlanta Med. Journal.*

The Chicago Clinical Review is the latest candidate for professional favor. Drs. Cleveland and Bouffleur are the editors.

MEETING OF INTERNATIONAL MEDICAL CONGRESS (American Public Health Association), in the City of Mexico, November 29th and 30th and December 1st and 2nd, 1892. For the convenience of delegates, and all physicians with their families, who desire to attend this meeting, an elegant Pullman car will leave Chicago November 19th. Short stops will be made at all points of interest between Chicago and the City of Mexico. For further information, maps, time tables, etc., address John E. Ennis, D. P. A., Mo. Pac. Ry., 199 Clark street, Chicago, Ill.

OFFICIAL LIST OF CHANGES in the Stations and Duties of Officers Serving in the Medical Department, U. S. Army, from October 1, 1892, to October 7, 1892.

Major Alfred A. Woodhull, Surgeon U. S. A., leave of absence granted is extended ten days.

Capt. Junius L. Powell, Asst. Surgeon U. S. A., is relieved from duty at Ft. Randall, S. Dak., to take effect upon the final abandonment of that post, and will then repair to Ft. Monroe, Va., and report in person to the commanding officer of that post for duty.

Major Robert M. O'Reilly, Surgeon U. S. A., will be relieved from duty at Ft. Logan, Col., and will report for duty as Attending Surgeon in this city on December 15, 1892.

Lieut.-Col. Francis L. Town, Deputy Surgeon-General U. S. A., is relieved from duty at the Presidio of San Francisco, Cal., and will report in person to the commanding officer, Ft. Porter, N. Y., for duty at that station.

Capt. Alonzo R. Chapin, Asst. Surgeon U. S. A., is relieved from duty at Ft. Yates, N. Dak., and will report in person to the commanding officer, Ft. Hancock, Tex., for duty at that station.

Capt. Eugene L. Swift, Asst. Surgeon U. S. A., is relieved from duty at Ft. Grant, Ariz., and will report in person to the commanding officer, Ft. Yates, N. Dak., for duty at that station.

Major Egon A. Koerper, Surgeon U. S. A., is relieved from duty at Ft. Walla Walla, Wash., and will report in person to the commanding officer, Willet's Point, N. Y., for duty at that station, relieving Major Clarence Ewen, Surgeon. Major Ewen, on being relieved by Major Koerper, will report in person to the commanding officer, Ft. Walla Walla, Wash., for duty at that station.

Major Robert H. White, Surgeon U. S. A., granted leave of absence for two months, to take effect during October, 1892.

Capt. Edgar A. Mearns, Asst. Surgeon U. S. A., is relieved from further duty with the commission appointed for the location and marking of the boundary between Mexico and the United States, and will without delay proceed from El Paso, Tex., to Ft. Clark, Tex., and report in person for duty to the commanding officer of that post.

OFFICIAL LIST OF CHANGES in the Medical Corps of the U. S. Navy, for the Week Ending October 1, 1892.

P. A. Surgeon Eugene P. Stone, detached from the "Pinta," and granted two months' leave.

P. A. Surgeon Louis W. Atlee, detached from the "Independence," and ordered to the "Pinta."

P. A. Surgeon F. N. Ogden, detached from duty in connection with Inter-Continental Railway Commission, and to the "Independence."

Surgeon William Martin, detached from the "Thetis."

P. A. Surgeon Chas. N. Rush, detached from the Navy Yard, New York, and granted six months' sick leave.